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JUNE.

HOOPER'S PHYSICIAN'S VADE MECUM:

A Manual of the Principles and Practice of Physic;

WITH AN OUTLINE OF GENERAL PATHOLOGY,
THERAPEUTICS, AND HYGIENE

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TENTH EDITION

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PRACTICE OF MEDICINE.

SPECIAL DISEASES.

CHAPTER I.

DISEASES OF THE NERVOUS SYSTEM.

1. Of the Brain.
2. Of the Spinal Marrow.
3. Of the Nerves of Sensation.
4. Of the Nerves of Motion.
5. General Disorders of the Nervous System.
6. Mental Disorders.

DISEASES OF THE BRAIN.

CEPHALALGIA	. . .	Headache.
ENCEPHALITIS	. . .	Inflammation of the Brain.
MENINGITIS	. . .	Inflammation of the Membranes.
HYDROCEPHALUS	. .	Water in the head.
APOPLEXIA	Apoplexy.
CHRONIC DISEASES of the Brain.		

CEPHALALGIA—HEADACHE.

Headache is a symptom of almost all acute and chronic diseases of the brain, as well as a distinct functional derangement of very frequent occurrence. It may be (*a*) External, or (*b*) Internal.

(*a.*) External.—1. Cephalalgia Muscularis; 2. Cephalalgia periosteosa; 3. Cephalalgia neuralgica.

(*b.*) Internal. 1. Cephalalgia congestiva; 2. Cephalalgia dyspeptica, vel sympathetica. Cephalalgia organica.

EXTERNAL.—1. *Cephalalgia muscularis*, or pain of the muscular covering of the head, affects the occipito-frontalis and temporal muscles. *Diagnosis*.—The pain is diffused, is increased by motion of the eyebrows and jaws, by pressure, and by percussion with the fingers; and is gener-

ally accompanied by muscular pain in the neck, shoulders, or other parts of the body. *Cause*.—Exposure to cold. *Treatment*.—That of catarrh when recent, and of muscular rheumatism when chronic.

2. *Cephalalgia periosteosa*.—Seat, the pericranium. *Diagnosis*.—The pain is usually limited to one spot, and is increased by firm and deep pressure, but little, if at all, by action of the muscles. It sometimes affects the periosteum of the face at the same time, so that the nose is tender to the touch; and it frequently extends to other parts of the body, especially to the shin and sternum. When limited to one spot, it is commonly attended with swelling (*nodes*). *Causes*.—By far the most common cause is the syphilitic taint, which shows itself also in characteristic diseases of the skin, etc., as well as by the peculiar appearance and expression of countenance known as *Cachexia syphilitica*. *Treatment*.—That of secondary syphilis. Iodide of potassium in five-grain doses in a tonic infusion is the proper treatment. If the bone be affected, and matter formed, free incisions will be required, followed by the treatment prescribed in surgical works for disease of bone.

3. *Cephalalgia neuralgica vel periodica*.—Seat, the nerves of the inner angle of the orbit and side of the nose (*megrin*) fixed in one spot, causing a sensation as if a nail were driven into the head (*Clavus hystericus*), or of one side, commonly the left, of the head and face (*hemisrania*), tenderness of the sensory branches of the fifth nerve, tenderness and aching of the eyeballs. It occurs with regularity at the same intervals as ague, and in some instances at the long interval of ten days, a month, or a year. In some cases the intermittent passes to a continued pain, and in many the disease is never distinctly intermittent, but is characterized by irregular intervals of perfect ease, and by being bounded by the median line of the head and face. The paroxysm may last for any period from an hour to two days. The disease is more common in women than in men, and in young than in old persons. But it may occur at any age. In the worst cases the pain is most acute, and is brought on by eating or speaking, or by draughts of air.

Cause.—Exposure to cold and wet—marsh miasma. *Treatment*.—The same as for ague—viz., quinine in large doses. But the liquor arsenicalis (Form. 291) cautiously administered, is to be preferred.

INTERNAL.—*Cephalalgia Congestiva*, or *Congestive headache*. This presents itself in three different states of constitution—the plethoric, the delicate and irritable, and the weak and leucoplegmic. *Diagnosis*.—Obtuse pain, affecting the whole of the head, especially the forehead and occiput, combined in the *plethoric* with a bloated countenance, a full red eye, distention of the veins, a full pulse, and a dull, heavy expression of the face; in the *delicate and irritable*, with flashes of light, floating specks before the eyes, noises in the ears, cold extremities, and a small, frequent, quick pulse; in *anæmic* subjects, with pale skin, lips, tongue, and gums, cold extremities, beating at the heart, violent throbbing of the

carotid arteries, and a small, frequent, quick pulse. In the two latter classes of persons, it is brought on in severe paroxysms, by sudden noises, mental emotions, or violent muscular exertion. *Treatment*.—In the *plethoric*, that of plethora (Vol. I., p. 240). In the *delicate* and *irritable*, repose of mind, careful attention to the state of the stomach and bowels, and sedative medicines taken at bed-time occasionally (Forms. 73, 76). In *anæmic* subjects the treatment of anæmia (Vol. I., p. 241).

A congestive headache allied to the first form (the plethoric) may be caused by narcotics. It often accompanies chronic bronchitis, the early stage of phthisis, and febrile disorders, and precedes apoplexy.

2. *Cephalalgia dyspeptica, vel sympathetica*.—*Sick headache*.—*Diagnosis*.—From other headaches by the marked disorder of the stomach, or of the whole alimentary canal. *Symptoms*.—Pain usually fixed, in the left temple, over the right eye, or on the forehead, commonly commencing when the patient first rises in the morning, and in slight cases continuing till after breakfast. In more severe ones, it begins as a diffused dull pain, and gradually becomes fixed in one spot, attended by nausea, flatulence, sour eructations, and vomiting. There is also confusion of thought, dimness and indistinctness of vision, and ringing in the ears. Sometimes the fit is removed by free discharge of food, of frothy mucus, or of bile from the stomach; perhaps accompanied, or followed by, diarrhoea. Its duration varies from some hours to three or four days. In confirmed cases it returns at short intervals, and is attended with great suffering. *Causes*.—Derangement of the functions of the stomach and bowels. The abuse of aperient medicines, by which the tone of the alimentary canal is weakened. Sick headaches are common just before and after the menstrual period. *Treatment*.—Gentle aperients combined with alkalies, as rhubarb with soda, or magnesia. Regulated diet; exercise; emetics, where the cause is transient. In cases of obstinate sick headache, emetics of ipecacuanha may be administered every morning with the best effect. If large quantities of bile are ejected from the stomach (bilious headache), cholagogue purgatives (Form. 249) are indicated. When the bowels are irregular and very irritable, an occasional dose of Gregory's powder, or rhubarb and bismuth. When much flatulence is present, turpentine or kreasote may be given. Cold to the head sometimes acts as a palliative. A draught containing from five to ten grains of carbonate of ammonia given at the commencement of the attack will sometimes arrest it; and a full dose of brandy and water will generally act favorably in procuring sleep.

3. *Cephalalgia organica*.—*Diagnosis*. This is distinguished from the foregoing forms either by appearing to affect the entire brain, or by being fixed and deep-seated. It is also subject to marked increase and decrease of severity, but rarely suffers a complete intermission. In character the pain resembles that of the plethoric form of congestive headache. If associated with dyspepsia, it is not relieved by vomiting. The

nature of the disease is at length made known by paralysis, spasms, or convulsions. *Treatment*.—That of the disease of which it is the symptom. The state of the circulation through the brain must be carefully watched, and local and general blood-letting, purgatives, and counter-irritants, must be resorted to; at the same time that strict attention is paid to the state of the general health. In chronic inflammatory affections of the brain, a course of mercury, so as to produce incipient mercurialism, will sometimes effect a cure.

Great caution is needed in inquiring into the cause of headache, and in discriminating one form from another. The treatment will entirely depend on the accuracy of the diagnosis. Sometimes for instance, a patient complaining only of frontal headache will be found to be suffering from phthisis pulmonalis. (G.)

ENCEPHALITIS.—INFLAMMATION OF THE BRAIN AND ITS MEMBRANES.

SYNONYMS.—Phrenitis. Meningo-encephalitis. Meningitis. Arachnitis. Attempts have been made to describe inflammation of the membranes of the brain, apart from that of the brain substance itself, but inflammation of the dura mater (see below) excepted, it is impossible to conceive hyperæmia of the covering membranes of the brain without implication of the gray matter of the convolutions.

VARIETIES.—1. *General*, that is, involving the whole, or the greater part of the substance and membranes of the brain.—2. *Partial*, or affecting only part of the substance, or of the substance and membranes.

1. GENERAL INFLAMMATION OF THE BRAIN AND ITS MEMBRANES.

SYMPTOMS.—In one class of cases the disease sets in with acute pain in the head and violent delirium: in a second with nausea, bilious vomiting, and obstinate constipation; in a third with a general convulsive paroxysm; in a fourth, and very rare class, with loss of speech.

The disease, when fully formed, is characterized by excruciating pain in the head; throbbing of the temporal and carotid arteries; flushed face; injected and brilliant eye; contracted pupil; and a peculiarly wild expression. There is great intolerance of light and sound, extraordinary acuteness of the senses, constant watchfulness, want of sleep, fierce delirium, and convulsions. The skin is hot and dry, the pulse hard and frequent, sometimes full, sometimes contracted; the tongue red and dry, or covered with a white fur; there is intense thirst, with nausea and bilious vomiting; and the bowels are obstinately confined. These symptoms belong to the stage of *excitement*, and may last from one to three days, when, gradually subsiding, they are succeeded by moaning or low mutter-

ing delirium, deafness, indistinctness of vision, insensible pupil, strabismus, twitchings of the muscles, often a clenched hand, tremors, cold sweats, relaxed sphincters, and retention of urine, with more or less profound coma.

In *Insolation* or *sunstroke* the disease runs a rapid course, and death may occur in from one to forty-eight hours. The pupils are contracted and fixed, and the breathing hurried. The symptoms of encephalitis soon pass into coma. Occasionally there are convulsions from the commencement of the attack; but in the majority of cases the patient dies without making the slightest movement.

Inflammation of the dura mater is rarely idiopathic, but follows injuries to the scalp, or cranium, or inflammation of the ear. So long as the inflammation is confined to this membrane, headache is the chief and usually the only, symptom, but even this may be absent (see p. 9).

TERMINATIONS.—When fatal, in coma; or in great prostration, with or without typhous symptoms. Recovery may be complete, or the disease may end in mania, dementia, or paralysis. Its duration varies from one or two days to two or three weeks, or even more.

CAUSES.—Excessive heat, or great vicissitudes of temperature; the direct rays of the sun (*coup de soleil*); violent exercise; excited passions; intense study; external violence; the abuse of spirituous liquids; gout, rheumatism, erysipelas, exanthematous fevers, dentition. Inflammation of the brain may also supervene on pneumonia, renal affections, and all febrile diseases, especially pyæmia. In childhood the most common cause is deposit of tubercle on the surfaces of the membranes. (*Tubercular meningitis*.)

DIAGNOSIS.—From *mania*, by the marked febrile symptoms and rapid course. From *febrile delirium*, by delirium being a primary and not a secondary affection. From the *effects of loss of blood*, by the history of the case, the inflammatory symptoms, and the flushed face. From *delirium tremens*, also by the history of the case, by the hot dry skin, and high fever, and the absence of tremor. In most cases of *delirium tremens* the face is pale and the skin moist; the limbs tremble; and the patient can understand and answer questions.

MORBID ANATOMY.—Thickening of the arachnoid, effusion of serum, lymph, or pus, under the arachnoid and in the meshes of the pia mater, or into the ventricles, with softening of their walls; the incised surfaces of the brain present numerous bloody points, the medullary surface is of a light pink hue, and the cortical of an ashy red, not removed by washing; suppuration, softening, or hardening of the brain substance. In death from sunstroke, great fulness of the lungs and right cavities of the heart. In tubercular meningitis, the effusion of tubercular masses external to the coats of the minute blood-vessels, appearing to the naked eye as minute semi-opaque grayish-white tubercles the size of millet seeds (Fig. 72).

PROGNOSIS.—*Favorable.* The return of sleep and consciousness; a warm and equable perspiration; diarrhœa; hemorrhage from the nose; diminished frequency, and greater fullness and softness of the pulse. If preparations of mercury have been given, the occurrence of salivation.—*Unfavorable.* Stupor, difficult deglutition, profound insensibility, tremors, convulsions; involuntary evacuations; suppression of urine; pallor of the face. In sunstroke the mortality is often more than 50 per cent.

TREATMENT.—I. *During the period of excitement.*—*Indication.* To lessen the force of the cerebral circulation.

(a.) By applying to the shaved head cold lotions constantly renewed, ice, or a stream of cold water. The latter is greatly to be preferred, especially when there is violent delirium.

(b.) By cupping the nape, leeching of the temples.

(c.) By active purging at the outset with castor or croton oil, or a full dose of calomel and colocynth, and salivation, if possible, induced by half-grain doses of calomel every two, three or four hours.

(d.) By depressants, in doses short of inducing vomiting. Of these tartar-emetic is the best, in doses of a sixth to a fourth of a grain, given every hour until an effect has been produced upon the pulse.

(e.) By counter-irritants, such as the mustard poultice to the nape and lower extremities.

(f.) By hypnotics, opium, and chloral hydrate alone or combined, when the delirium is active, and the respiration free.

(g.) By complete rest and perfect quiet. The sick-room should be kept dark and silent. The head and shoulders should be raised and the patient most carefully watched.

II. *During the period of torpor.*—Brisk purgatives may be given with advantage, and the scalp freely blistered.

In extreme collapse, ammonia, wine, and brandy must be given, with beef-tea and nourishing food, and opium or laudanum may be cautiously administered. If deglutition be imperfect, food and medicine must be given by the rectum. The state of the bladder must be frequently ascertained, and, if necessary, the water must be drawn off two or three times a day.

III. *During convalescence.*—The patient must be narrowly watched, the diet carefully regulated, the bowels kept free by gentle aperients; and ordinary occupations interdicted till health is quite re-established. In case of relapse, cold applications to the head, counter-irritants, and more active purgatives should be resumed. If the mind does not recover its tone, the memory is impaired, and the patient remains weak and irritable, the cold douche or shower-bath should be used every morning, and an occasional blister to the scalp, or a seton in the neck or arm, may be resorted to.

In the treatment of sunstroke the cold douche is very serviceable.

2. PARTIAL INFLAMMATION OF THE BRAIN WITH OR WITHOUT IMPLICATION OF ITS MEMBRANES.

SYMPTOMS.—These are often very obscure; and vary with the extent, degree, and progress of the inflammation, as well as with the part of the brain attacked. In most cases, the first symptom is pain in the head, more or less severe, rarely altogether absent, but subject to increase from causes affecting the circulation, and accompanied from the first, or followed after a time, by giddiness, singing in the ears, indistinct or disordered vision, numbness or increased sensibility of the fingers, of the hands and arms, or of other parts of the surface of the body; and slight convulsive movements of the limbs, with occasional attacks of nausea and faintness. The patient is restless and irritable, or suffers from low spirits; the sleep is disturbed, and the intellect more or less impaired. The circulation is very variable, the pulse being at one time slow and regular, and the countenance pale; at another, the pulse frequent and the face flushed. These opposite states often alternate with each other at short intervals. The patient suffers from nausea and anorexia, and is liable to frequent attacks of vomiting. As the disease advances these symptoms become more strongly marked, and rigid contraction of particular muscles or groups of muscles is superadded, occasioning squinting, distortion of the features, difficult and indistinct pronunciation of particular letters or words, and sometimes great difficulty in swallowing. When the muscles of the extremities are thus affected the limbs assume a flexed position, and any attempt to move them occasions great pain. The pupils are generally dilated, or unequal, and the sight of one or both eyes is impaired. Ptosis is often present. In a still more advanced stage the partial contractions of the limbs are exchanged for very extensive and constantly increasing loss of power and sensation; all the senses fail, the sphincters are relaxed, and the patient sinks utterly helpless and exhausted. In some cases general convulsions, usually stronger on one side of the body, supervene.

The duration of this disease is extremely variable. It may assume from the first an acute character, and terminate fatally in a few days; or it may run a chronic course of several weeks, months, or years; or the chronic form may, at any time, be exchanged for an acute attack with extensive inflammation of the membranes of the brain.

MORBID ANATOMY.—Congestion of the affected portion of the cerebral substance; hardening of its texture; white or red softening, small extravasations of blood; infiltration of pus, contiguous to inflamed or necrosed bone; encysted abscess; fatty degeneration, ossification, or aneurism of the vessels; gangrene; a cystic entozoon surrounded by inflamed brain tissue; scrofulous tumors. The membranes of the part affected are usually more or less diseased, and effusion of serum is a common consequence of several of these conditions. In certain cases the local disease

may be traced to obstruction of a cerebral vessel by a clot of fibrin derived from an aneurism or diseased cardiac valve.

CAUSES.—The eruptive fevers and pyæmia.—Scrofulous or syphilitic diseases of the cranial bones or of the membranes of the brain. Disease of the petrous bone following scarlatina, often after the lapse of many years, is a very fertile cause.—Blows.—Entozoa.

DIAGNOSIS.—From general encephalitis, by the partial character of the rigidity, spasm or paralysis. Only one side of the body, or one limb or organ, may be thus affected. Inequality of the pupils, squinting of one eye and double vision, ptosis of one eyelid, deviation of the tongue or uvula from the median line, or numbness and twitching of a single limb may be the only indication.

The following facts will aid us in our diagnosis:—

1. Disease of one side of the brain causes paralysis, or some disorder of the opposite side of the body. But to this the face is often an exception. According to Burdach, “in 28 cases of cerebral lesion of one side, the muscles of the opposite side of the face were paralyzed; in 10 cases those of the same side. Paralysis of the muscles of the eyeball occurred in 8 cases on the same side, in 4 on the opposite.” The tongue is almost always paralyzed on the side opposite to that of the face, its point being pulled towards the paralyzed side.

2. So long as the disease is confined to the white substance of the *cerebral or cerebellar lobes*, without causing pressure on surrounding parts, its presence is not manifested by disordered nervous function.

3. Disease affecting the *corpus striatum* produces paralysis of motion (hemiplegia) on the opposite side of the body.

4. Disease of the *optic thalamus* results in loss of sensation on the opposite side of the body, with more or less disorder of vision.

5. Disease of the *crus cerebri*, or *pons Varolii*, produces paralysis of motion and sensation on the opposite side of the body.

6. A clot or tumor in the *centre of the pons Varolii* results in more or less complete loss of motion and sensation on both sides with disordered action of the muscles of the eyes and eyelids.

7. Disease affecting the gray matter of the *cerebellum* causes disordered motion on the opposite side of the body, with sensations of rolling, or of downward or upward movement.

8. Pressure within the fourth ventricle from blood clot, or any other cause, results in derangement of the functions of deglutition and respiration, hearing, and sensation.

Paralysis due to disease of the spinal cord is distinguished at a subsequent page.

The following statements will aid us in determining the particular nature of the cerebral disease:—

I. If the symptoms set in after a chronic discharge of offensive matter from the ear, we may infer that *caries of the petrous portion of the*

temporal bone has induced suppurative inflammation of the contiguous part of the brain or its membranes.

II. When a delicate scrofulous child becomes sleepy, heavy, and listless, and gradually lapses into unconsciousness, with partial convulsive twitching and clenching of the hand, grinding of the teeth, squinting and uprolling of the eyes, we may generally conclude that there is a *scrofulous tumor* in the substance of the brain, or attached to its membranes.

III. Vertigo, and sudden circumscribed pain in the head, followed by severe and repeated epileptiform convulsions, have been caused by the cystic entozoa.

IV. *Chronic abscess of the brain* is a most insidious disease—*e. g.*, A lad received a lacerated wound over the left frontal eminence, was stunned for a few minutes, but soon recovered. Eight days afterwards he resumed work, and continued working till three days before his death. The wound cicatrized by the thirty-second day. There were no head symptoms, not even a trace of pain; the health and spirits were good, but he showed a little irritability of temper. On the thirty-ninth day he appeared pale and listless, and complained of pain in the epigastrium and sickness; he had passed urine during sleep the preceding night, and he faltered once in walking to the infirmary, as if he had lost for a moment the use of his limbs. He again wetted the bed at night, and the next day lost the use of his right side. The following morning he was unable to swallow, and by 4 P.M. was comatose with stertorous breathing, and a slow, labored, irregular pulse. He continued in this state until 3.30 P.M. next day, and then died. A thick-walled abscess, containing six ounces of thick greenish matter, occupied the anterior lobe of the left cerebral hemisphere, distending the membranes.

As abscess of the brain caused by external violence may thus insidiously progress under the eye of the medical man; hence we can scarcely hope to receive timely intimation of the presence of the disease when it arises from some internal cause, unless, indeed, it involve one of the centres of sensation or motion, or the root of a particular nerve.

Apoplexy and partial softening of the brain may arise in persons beyond middle age from disease of the blood-vessels.

PROGNOSIS.—Unfavorable in every stage of the disease, but especially when rigid contractions or paralysis have set in.

TREATMENT.—Will depend on the cause. It is that of general encephalitis but less active. If there be great heat of the head, cupping or leeches. In milder cases, blisters behind the ears or to the nape will suffice. In chronic cases a seton may be inserted in the nape. Gentle saline aperients, a spare diet, and rest of mind and body should be prescribed. If the disease have a syphilitic origin, iodide of mercury will be required. When there is positive evidence of the formation of pus within the cranial cavity, the question of trephining will probably arise.

HYDROCEPHALUS.—WATER IN THE BRAIN.

VARIETIES.—1. Acute; 2. Chronic.

ACUTE HYDROCEPHALUS.

SYMPTOMS.—This disease, like those last described, varies in its onset. Sometimes it is preceded, for a long time, by languor, inactivity, loss of appetite, nausea, vomiting, parched tongue, hot dry skin, flushing of the face, and other symptoms of pyrexia, or by those of infantile fever. (See Vol. I., p. 312.) In a second class of cases, it begins suddenly with the symptoms of inflammation of the brain and its membranes. (See p. 4.) In a third class, it comes on obscurely, in the course of febrile disorders or of the exanthemata.

The disease in its first stage is characterized by acute darting pains in the head, with heat of scalp; great sensibility to light, suffused redness of the eyes, flushed countenance, a hot dry skin, contracted pupils and knit brows. The patient is very restless, moans incessantly, tosses about, and rolls the head from side to side. The sleep is short and disturbed by a start or scream. The gait is tottering, and the hand is often raised to support the head. The pulse is accelerated, hard, and quick; the respiration hurried and sighing. The tongue coated; there is nausea or vomiting; the bowels are either obstinately confined, or unusually loose, with foetid evacuations; and the urine is scanty. Delirium and convulsions are sometimes present in this, the stage of *excitement*. In infants there is strong pulsation of the fontanelles; which afterwards become tense and bulge outwards.

After a longer or shorter period, the symptoms become less violent; the pain is less acute, and is expressed by a low moaning; an uneasy sleepiness succeeds to watchfulness; the pupils are dilated, and strabismus is often present; the muscles of the fore-arm are rigid and occasionally convulsed, and the fingers are clenched upon the thumb; the pulse is now preternaturally slow and often intermitting, but subject to great and sudden acceleration on change of posture; and the respiration is interrupted by deep sighs. The strabismus increases; the pupils become more dilated and cease to contract when exposed to light; and double vision, or complete loss of sight, with lethargic torpor, succeed.

In fatal cases the slow pulse changes to an extremely small and rapid one; the respiration grows stertorous; the limbs are convulsed or paralyzed; the skin is bathed in a cold sweat; the evacuations become involuntary; and the patient expires in convulsions, comatose, or exhausted.

Acute hydrocephalus in the adult.—This is a rare occurrence, hydrocephalus being peculiarly a disease of infancy and childhood. But Heberden relates the following case:—"An adult was seized with intol-

erable pain of the head, sometimes had a voracious appetite, and sometimes none; became delirious, convulsed, stupid, and died: the ventricles of the brain were found so distended with water, that as soon as a puncture was made the water flew out to a considerable distance." (This was probably a case of hydatid tumor.)

TERMINATIONS.—In slow recovery; in death; in the chronic form.

MORBID ANATOMY.—Sometimes enlargement of the head, separation of the sutures, and protrusion of the membranes. Serum, limpid or turbid, in the ventricles, or beneath the membranes; softening of the surrounding cerebral substance; flattening of the convolutions; masses of tubercular matter in the substance of the brain. The pia mater unusually vascular; the arachnoid opaque; minute semi-transparent or opaque bodies, single or in patches, in the pia mater; or tuberculous matter from the size of a millet-seed to that of a pea on the surface of any of the membranes (*tubercular meningitis*, see Fig. 72).

CAUSES.—*Predisposing*. Infancy and childhood; debility; scrofulous diathesis.—*Exciting*. Intestinal irritation; dentition; inflammation spreading from the ear; fevers and the febrile exanthemata; premature application to study.—*Proximate*. In most instances tubercular deposits in the pia mater. Infantile fever is a common antecedent.

DIAGNOSIS.—Heat of head and distention of the fontanelles; spasm and twitching or actual convulsions, followed by strabismus, dilated pupil, and profound stupor, are the distinguishing marks. The tubercular nature of the disease may be inferred from hereditary tendencies, actual presence of tubercles in the lungs, enlarged cervical glands, or other manifestations of the scrofulous diathesis. This disease may be distinguished from one of an opposite character, called *spurious hydrocephalus*, by the following characters: a *pale cheek*, a *cool or cold skin*, *great languor* and an *absence of febrile symptoms*, or, at the most, an occasional and transient flushing of the face; to which may be added, in the case of infants, a sunken instead of swollen fontanelle. On inquiry, the child will be found to have suffered from loss of blood, long-continued diarrhoea, or some other exhausting discharge.

PROGNOSIS.—Very unfavorable; especially if there be squinting, a weak intermittent pulse, great enlargement of the head, apoplectic stertor, difficult respiration, and involuntary evacuations.

TREATMENT.—The *general treatment* will be that appropriate to inflammation of the brain (see p. 4), due regard being paid to the strength and constitution of the patient, and to the existence of any special source of irritation. If the disease be acutely inflammatory, small doses of gray powder may be given every three hours. If the gums be hot and swollen they should be freely lanced, and a leech may be applied to the mouth or behind the ear. In the threatening convulsions and insomnia of dentition, conium (3 ss. to 3 ij. of the succus twice a day) is a valuable remedy. When the disease is protracted and

the scrofulous diathesis well marked, the continued use of mercurials would be injurious, and we must trust to local treatment, to aperients and sedatives.

The *local* treatment consists in the application of cloths wetted with cold water, vinegar and water, iced water, or spirit lotion to the head. Cold water may be dropped on the slightly raised head, while the body and extremities are immersed in warm water. Counter-irritants, such as mustard poultices or blisters to the temples, back of the ears, or neck, may be used at the same time.

2. CHRONIC HYDROCEPHALUS.

SYMPTOMS.—Children are sometimes born with this diseases; it is very rare in adults, but Dean Swift died of it. It may occur at any age from birth to the eighth year, seldom after. It either comes on insidiously, or follows the acute form. It is indicated by drowsiness, languor, strabismus, vomiting, costiveness, coma and convulsions; the bones of the head separate, the fontanelles enlarge, and the head may acquire an enormous size, and yet the patient survive for months or even years.

CAUSES.—*Predisposing.* The scrofulous diathesis.—*Exciting.* Injury to the brain during labor; tumors within the cranium; dentition; intestinal irritation. The acute form.

DIAGNOSIS.—The history of the case, large size of the head, and prominence of the fontanelles.

Parents are often anxious about the large size of their children's heads, supposing it to be due to water in the head. The medical man will not attribute a large head to this cause, in the absence of other decided symptoms.

PROGNOSIS.—The disease generally ends fatally, with convulsions. If the bones yield and separate, life may be much prolonged.

TREATMENT.—*Indications.* I. To promote the absorption of the effused fluid. II. To improve the health.

I. Blisters to the head, kept open by cantharides or savine ointment; frictions with tartar-emetic ointment; or an issue over the fontanelles. In several cases the anterior fontanelle has been punctured at the side of the longitudinal sinus, and much serum withdrawn, but the results have not justified the operation. Pressure by strips of adhesive plaster, and the constant application of cold, may check the further effusion of fluid, till the sutures are well knit.

II. Mercury; applied externally, and given internally, until the gums are tender. In constitutions tainted by syphilis and scrofula, iodide of mercury or of iron is appropriate.

The diet should be light and nutritious, and a little wine may be given at short intervals throughout the day. A change of air, especially if the

patient live in a low and damp situation, to the sea-side or a dry and bracing inland spot, is beneficial.

Among tonics the best is the *Vinum ferri*.

APOPLEXIA.—APOPLEXY.

DEFINITION.—Sudden loss of motion, with more or less derangement of perception and sensation, caused by pressure on the brain with or without lesion of its substance.

VARIETIES.—1. Congestion—*i. e.*, fulness of the cerebral vessels without rupture; 2. Serous, or congestion with serous effusion; and, 3. Hæmorrhagic, or congestion with rupture.

SYMPTOMS.—This disease makes its attack in one of three ways:—1. Suddenly, the patient falling down without warning, as if from a blow. 2. After a short premonitory stage, consisting of acute headache, sickness, and faintness. 3. With sudden hemiplegia.

In the first variety, or congestive, the patient does not lose consciousness, though there may be a little confusion of intellect. Usually there is a feeling of pressure in the head, the speech becomes thick, slow, and hesitating; the gait a little faltering, with giddiness, and a sensation of numbness in the face, or in the hand. With the relief of the congestion, these symptoms pass off after twenty-four hours.

In the other varieties the symptoms are due either to pressure, or to local lesion and pressure combined. In the serous variety, headache is the first symptom, becoming very intense; at last it is relieved by a sleep, which commonly passes into coma, and the patient dies apparently in sleep. In the hæmorrhagic form, the symptoms come on suddenly: the patient reels and falls, with or without loss of consciousness, or impairment of speech, and on attempting to move he finds that the limbs on one side of the body are powerless. If the hæmorrhage be small, and confined to one lateral ventricle—its usual seat—the intellect is unaffected, but the patient feels faint, and usually vomits. If the hæmorrhage continue, the following symptoms will declare it: increasing, and in the course of a few hours, complete stupor; a slow and noisy, or stertorous and puffing breathing; difficult deglutition; flushed and livid countenance; prominent and motionless eye, and generally unequal pupils. The limbs are either motionless, rigid, or convulsed; and usually more so on one side. The bowels are either obstinately confined, or act unconsciously; the urine also is either passed involuntarily, or, being retained till the bladder is full, dribbles away. The pulse is full, strong, and quick; and often slow. The hemiplegia usually involves the tongue and the face; the latter is not always affected on the same side as the limbs, but the tongue most frequently points to the palsied side.

When the paralysis gradually involves the side which was at first unaffected, we may conclude that the blood has become diffused through both lateral ventricles. In slighter cases the patient does not become unconscious, and the speech is slightly and transiently affected. In other cases the chief indication of the paralytic seizure is loss or derangement of speech.

Apoplexy is sometimes preceded for a considerable time by premonitory symptoms, such as giddiness, pain and a sense of pressure in the head, confusion of ideas, incoherence, loss of memory, faltering speech, flushing of the face, bleeding from the nose, noises in the ear, flashes of light, illusions, double vision, transient blindness or deafness, drowsiness, numbness of the limbs, pallor, nausea, vomiting, and faintness.

TERMINATIONS.—In death, after a variable interval. In almost complete recovery; but usually in partial recovery, with some impairment of the intellect, and partial paralysis of one side; or of one arm only.

MORBID ANATOMY.—In *simple* or *congestive* apoplexy, distention of the vessels of the brain, with or without effusion into the ventricles, or at the base. In *serous* apoplexy, serous effusion into the ventricles, or between the membranes. In *hæmorrhagic apoplexy*, blood in the substance of the brain, in the ventricles, at the base, or on the surface.

The most vascular parts of the brain are those in which hæmorrhage is most liable to occur. In 444 cases tabulated by Dr. Aitken, the hæmorrhage happened 268 times in the corpora striata; 39 in the thalami optici; 81 in the lobes of the cerebrum; 22 in the pons Varolii, and 34 in the other parts of the encephalon, being at the respective rates of 60, 8, 20, 5 and 7 in the hundred. We often meet with evidence of a seizure previous to the fatal attack, in the form of a recent clot with circumscribed inflammatory softening of the surrounding nerve substance; an old contracted colorless clot containing blood crystals; or a small cicatrized cavity inclosing a little serum.

DIAGNOSIS.—From the effect of spirituous liquors, by the odor of the breath. From the ordinary effect of narcotic poisons, by the history of the case. From both by some difference in the motor power of the two sides of the body; *e.g.*, one pupil may be contracted, and respond to the stimulus of light, while the other is dilated and immovable; the muscles of the limbs on one side may be perfectly flaccid, so that the arm or leg falls from the hand like a mass of inanimate matter, while the muscles of the limbs on the other side are more or less rigid. If the limbs be convulsed, the movements on the two sides will be found on careful examination to be unequal. Sooner or later some such evidence of local injury to the brain will be manifest. To make a correct diagnosis of the exact seat of injury, and form a just prognosis, attention must be paid to the facts enumerated in the diagnosis of partial encephalitis. (See p. 8.)

PROGNOSIS.—*Favorable.* Youth; slight impairment of the intellect and senses; hæmorrhage from the nose or hæmorrhoidal vessels; diarrhœa;

profuse perspirations; a pulse of natural frequency and character; natural breathing.—*Unfavorable* in proportion to loss of consciousness. A full, hard, jerking pulse; loud stertorous breathing, with a puffing out of the cheeks; repeated shiverings, followed by a high fever; repeated vomitings; spasm, rigidity, or convulsions; involuntary evacuations; retention of urine; strong retraction of the paralyzed leg.

CAUSES.—*Predisposing.* Age, from the fiftieth to the eightieth year: the liability increasing as the age advances. Few cases occur under twenty, and very few indeed in infancy and childhood. A certain make of body, combining a short thick neck, large chest, florid complexion, and stout person; but the disease may occur in persons of the opposite conformation. Hereditary tendency; a sedentary life with overfeeding; suppression of usual evacuations; plethora; valvular disease of the heart preventing the free return of blood from the head. The chief *proximate* cause is disease of the cerebral vessels, the several stages of which appear to be fatty degeneration, atheroma, and ossification, giving rise to loss of elasticity and contractility. The vessels become dilated and their coats attenuated, so that the least excitement of the circulation may cause rupture. (See p. 17.)

Exciting.—Violent exercise; strong expiratory efforts, as in singing and playing on wind instruments; straining at stool; fits of coughing; sudden and violent emotions; exposure to intense cold or heat; long stooping, and suddenly rising from the stooping posture; pressure on the neck; venereal excitement; intemperance; narcotic poisons, such as opium; suffocation by drowning, hanging or strangulation, or by the narcotic gases, especially carbonic acid and carbonic oxide.

TREATMENT.—During or immediately after the fit, loosen the neckerchief and shirt-collar, raise the patient's head, or place him, if convenient, in a chair, and open the window of the apartment. When the face is turgid and the eye injected, or, the face being pale, the pulse is full, hard and jerking, we may open a vein in the neck or arm, or partially divide the temporal artery, and allow the blood to flow till the approach of syncope, taking care that the patient does not faint. But when the face is pale and the pulse feeble and intermittent, the patient must be treated as if he were in a fainting fit, and the bleeding must not be practised till reaction has occurred, and the symptoms just stated have appeared.

In the after-treatment, the *indication* is to reduce the action of the heart, and diminish the force of the circulation through the brain.

1. Leeches and cupping glasses to the head and neck.
2. Drastic purgatives, of which croton oil, in doses of one or two drops, is the most easily used and most efficacious. Purgative enemata.
3. Cold to the head, if there be increased heat.
4. Blisters to the nape, and after a time to the scalp.

5. A diet, consisting at first of farinaceous food, passing to a more generous diet cautiously and gradually.

6. If the fit follow a full meal, an attempt must be made to evacuate the stomach by tickling the fauces with a feather, or by an emetic.

If the menstrual or hæmorrhoidal flux have been suppressed, leeches should be applied to the vulva, or anus. When there is profound coma or collapse, we may apply the liquor epispasticus to the nape and strong ammonia to the nostrils, and use a turpentine enema. The hot air-bath, or stimulants, in such cases, have produced reaction; and when this happens, depletion may be necessary.

When apoplexy supervenes after a retrocession of gout or of acute rheumatism, brisk aperients should be given without delay.

If the patient swallow with difficulty, great care is required in giving food and medicine. Medicines should be unirritating and not bulky, and nourishment be given by teaspoonfuls. The bowels should also be relieved by purgative clysters, and the urine be drawn off twice a day.

On the repetition of the fit, we must again resort to the treatment required in the first attack, but in a less active form. When the patient is convalescent, we may insert a seton in the neck. For sleeplessness and great irritability, opium is the appropriate remedy; but it is contra-indicated in the early stages of apoplexy.

In treating apoplexy, in all its stages, we must take care not to carry depleting measures to an extreme. Undue activity in this respect may lead to fatal consequences, especially in aged and feeble persons in whom it will suffice to keep the bowels somewhat more open than usual, and to regulate the diet, giving wine and other stimulants, according to the state of the pulse.

PROPHYLAXIS.—The patient should take regular exercise in the open air, be abstemious in his habits, keep the bowels free, and avoid tight clothing about the neck or chest. In persons of weak constitution, a light nutritious diet, with a moderate allowance of weak stimulants, combined with astringent chalybeates or acid tonics, should be prescribed; business and study must be laid aside, and all excitement avoided. For the treatment of paralysis following apoplexy, see Paralysis.

CHRONIC DISEASES OF THE BRAIN.

The chief chronic diseases of the brain are softening, atrophy, induration, hypertrophy. The symptoms and diagnosis of these diseases are extremely obscure and uncertain; for the same symptoms may be present in very different states of the organ; and in many cases there are no symptoms to lead us to suspect their existence. Thus, Louis states, that of twenty cases of fungus of the dura mater, three only had cerebral

symptoms of any kind; and the same is true of abscesses, hydatids, cysts and exostoses attaining great size.

1. CHRONIC SOFTENING OF THE BRAIN.

SYMPTOMS.—Those of failing intellectual and physical powers, gradually lapsing into imbecility. The gait becomes shuffling and unsteady, the grasp weak, the speech thick and slow, and the articulation imperfect (*aphemia*, *aphasia*); or the patient may constantly substitute a wrong for a right word (*paraphasia*). There may be similar disturbances in the writing power (*agraphia*). The memory is defective, and the animal functions torpid. A sensation of numbness and pricking affects the hands and feet. The radial and temporal arteries are seen and felt to be tortuous and hard. An "arcus senilis" frequently surrounds the cornea. The patient is liable to attacks of apoplexy. His spirits are usually depressed, he is listless and apathetic, and is easily moved to tears. Such persons are often the subjects of delusions, which usually assume an emotional and sanguine character. They conjure up visions of immense wealth, and great power and dignity, and, if not under restraint, are lavish in their expenditure.

TERMINATION.—Sooner or later in serous or sanguineous apoplexy.

MORBID ANATOMY.—Brain matter paler than usual, and so soft that a gentle stream of water easily washes it away. In extreme cases it is semi-fluid, and has little more consistence than cream. This softening is due to oily matter in large globules, or in a state of minute subdivision. In all cases the blood-vessels are diseased, and the condition of the radial and other arteries may be taken as an indication of that of the carotid within the brain. The primary branches are sometimes dilated, thin, and stiffened here and there by patches of atheromatous deposit; sometimes converted into bony tubes. If the softened brain pulp be washed away, a network of atheromatous or bony tubes will be left.

CAUSE.—Defective nutrition of the brain, due to diseases of the coats of the blood-vessels; to the plugging of large arteries or one of their branches by a clot detached from an inflamed cardiac valve, or aneurismal sac.

PROGNOSIS.—Unfavorable.

TREATMENT.—Gentle exercise in dry mild air, light nutritious diet, with a liberal allowance of wine. Dilute nitric and phosphoric acids in bitter infusions, perchloride of iron and salts of zinc given for a week or two alternately. The patient should sleep with the head and shoulders slightly raised, and avoid all excitement, mental and physical.

2. ATROPHY OF THE BRAIN.

Shrinking of the brain, with effusion of serum around it or within its ventricles, or with thickening of the bones, is a common condition in the insane.

3. INDURATION OF THE BRAIN.

This is probably the result of chronic inflammation. The nerve-tissue is harder and less vascular than usual, pearly white, of the consistence of boiled white of egg. The induration may be partial or general. Convulsive movements are common symptoms of this disease.

4. HYPERTROPHY OF THE BRAIN.

Is a disease of childhood, allied to hydrocephalus, and occurs in children of scrofulous habit. The brain is softer than usual, the convolutions flattened, and the ventricles contracted. Pallor, anorexia, listlessness, occasional headache and giddiness are its symptoms, and death may be preceded by repeated convulsions.

DISEASES OF THE SPINAL CORD AND ITS MEMBRANES.

MYELITIS Inflammation of the Spinal Cord.

SPINAL MENINGITIS . . . Inflammation of its Membranes.

OTHER DISEASES OF THE SPINAL CORD.

GENERAL REMARKS.—Diseases of the cord neither affect the intelligence nor the special senses.

As aids to diagnosis of the seat of disease, the following facts must be borne in mind:—

1. Complete transverse section of the posterior columns of the cord entails loss of power to regulate the movements of the parts below the section, and partial injury incomplete control over the muscular movements. Hyperæsthesia occurs in both cases in the parts below the section.

2. Transverse section of the antero-lateral column produces paralysis of motion in the parts below the section on the same side of the body.

3. Transverse section of the whole of the gray central nervous matter causes loss of sensation in all parts below the section. Transverse section of one half of the gray matter results in loss of sensation of the opposite limb below the section.

4. Hence transverse section of an entire half of the cord causes in the parts below the section paralysis of motion with hyperæsthesia on the same side, and loss of sensation only, on the opposite side.

5. Inflammatory irritation in the seat of the disease, causes rigid contraction of the paralyzed limbs. In non-inflammatory disease, or when inflammation has passed away, the muscles are flaccid.

MYELITIS.—INFLAMMATION OF THE SUBSTANCE OF THE CORD.

SYMPTOMS.—Dull aching pain in the part affected, with some tenderness; loss of sensation and voluntary motion; or numbness and impaired sensibility, with weakness of the upper or lower extremities, or of both, or of a single limb; or loss of sensation in one extremity, and of voluntary motion in another. The palsied limbs waste; but the reflex function is intact. The muscles of the affected limb may be relaxed, contracted, or convulsed. Sooner or later, retention or incontinence of urine comes on, the motions pass involuntarily, and bed-sores form on the back and hips. At last the patient sinks exhausted, or dies comatose from the extension of the disease to the brain.

The symptoms vary with the seat of the disease. When the *cervical* portion of the cord is affected, the arms are paralyzed, and there is difficulty in swallowing and in breathing, with a sense of tightness around the chest, and in the epigastrium. The pulse is sometimes very slow. Priapism is often a troublesome symptom.

When the *dorsal* portion is affected, the body is sometimes agitated by continued convulsive motions, and there are palpitations, difficult respiration, and sense of constriction in the abdomen.

When the *lumbar* portion is attacked, the arms and breathing escape, but the legs are paralyzed; and there is retention, followed by incontinence of urine, and constipation, followed by involuntary evacuations from the bowels. Impotence is a common consequence of disease of this part of the spinal marrow.

In some cases the disease comes on insidiously, without pain, and makes slow progress, but is finally succeeded by paralysis of the bladder, rectum, and legs.

MORBID ANATOMY.—Inflammation ending in hardening, creamy softening, or abscess of the cord partial or complete. Tubercle.

CAUSES.—*Predisposing.* The adult age, and male sex.—*Exciting.* Blows and falls; violent exertions; exposure to wet and cold. Caries of the vertebræ; scrofulous disease. Venereal excesses.

DIAGNOSIS.—From other diseases of the cord, by the more complete loss of sensation. The gray matter, the conductor of sensitive impressions, being most vascular, is most liable to inflammation.

PROGNOSIS.—Usually the retained urine produces cystitis with ammoniacal ropy urine, large and deep sloughs form over the sacrum and buttocks, and the patient dies exhausted within three months. Complete recovery is rare.

TREATMENT.—In the early stage, leeches or cupping to the part affected, followed by blisters, issues, or setons. If there be retention or dribbling of urine, the catheter should be used twice a day, and the bladder washed out with the following: Glycerini acidi carbolici ℥x., aquæ tepidæ ʒ x. The patient should lie on a water bed, and the most scru-

pulous attention be paid to cleanliness. Tonics (Forms. 117, 124) may be given in the chronic stage.

SPINAL MENINGITIS.—INFLAMMATION OF THE MEMBRANES OF THE CORD.

SYNONYM.—Spinal arachnitis.

VARIETIES.—1, Acute spinal meningitis. 2. Sub-acute spinal meningitis or spinal irritation. 3. Rheumatic spinal meningitis.

1. ACUTE SPINAL MENINGITIS.

SYMPTOMS.—Pain in the part affected, increased by motion, percussion, pressure, or heat. The pain, which often closely resembles that of rheumatism, and is brought on, or increased, by motion, extends along the back, and to the limbs, which are sometimes painful to the touch; or it shoots round the abdomen or chest. There are contractions of the back and neck, and of the limbs, varying with the seat of the disease, and assuming the form of trismus, torticollis, partial or complete opisthotonos, or general tetanic spasms. Sometimes there are convulsions, or choreic movements. There is a sense of constriction in the neck, abdomen, or chest, with urgent feelings of suffocation. In some cases the urine is retained and the bowels are confined.

The disease generally proves fatal from the tenth to the fourteenth day, with delirium, coma, or typhous symptoms.

MORBID ANATOMY.—Inflammation of the arachnoid and pia mater, with effusion of serum beneath the arachnoid, or in the wide subarachnoid space between this membrane and the pia mater. In some cases inflammation and its consequences in the cord itself.

CAUSES.—Those of inflammation of the substance of the cord.

DIAGNOSIS.—By the rigid spasm or convulsions, and in many cases by the affection of the bladder.

PROGNOSIS.—Less unfavorable than when the substance of the spinal marrow is inflamed; but attended with considerable danger.

TREATMENT.—Leeches, and cupping to the part affected, followed by active aperients, a strict antiphlogistic diet, the recumbent posture, and perfect rest. After the bleeding, bags of ice may be applied, and counter-irritants in the neighborhood of the part. The state of the bladder should be ascertained, and the urine, if necessary, frequently drawn off. Slight mercurialism may be induced. In collapse, the strength must be supported by diffusible stimulants and injections.

The chronic form of disease, attended by paralysis with shaking or stiffness of the limbs, requires counter-irritation by issues and setons.

2. SUBACUTE SPINAL MENINGITIS.—SPINAL IRRITATION.

SYMPTOMS.—Pain in the affected part of the spine, increased by firm pressure, percussion, or heat. Pain in the left side, or under the false ribs, in all the muscles of the chest, over the whole abdomen, or even in all parts below the seat of disease, with dyspnœa and palpitation, hysteria, low spirits, irritability, constipated or disordered bowels, and flatulence. These symptoms may be aggravated after marriage, or during lactation and pregnancy.

DIAGNOSIS.—By firm pressure with the fingers from the neck to the loins, we discover one or more tender points; and by striking the parts, the pains in the side, chest, or abdomen are either produced or increased. Sometimes these superficial pains are accompanied by convulsive movements of the trunk.

CAUSES.—*Predisposing.* The female sex. It is common in young females, in whom it is sometimes associated with spinal disease.—*Exciting.* Sedentary pursuits, tight lacing, want of active exercise, constipation, painful menstruation, leucorrhœa; the original cause and the effect continuing to react upon and increase each other. A tender state of spine is not uncommon in spasmodic asthma and chorea.

RATIONALE.—The tender spine is the middle link between some remote irritation of the uterus or intestinal canal, and the pains in the muscles of the chest or abdomen. The irritation travels through the nerves of the part affected, to the spine, where it shows itself as tenderness, and is thence reflected to the seat of pain. The connection of the muscular pain with the tender spine is shown by the effect of percussion in producing or increasing it; also in exciting convulsions when these are associated with the pain. In those severe cases of spinal irritation which border on acute spinal meningitis, pressure on the spine causes both acute pain and violent convulsive or tetanic movements, and the slightest pressure on the site of the reflected pain will also cause convulsions. Pressure or percussion on other parts of the skin, or on the spine above or below the affected part of the cord, are not attended either by pain or convulsions. (G.)

PROGNOSIS.—*Favorable.* The disease generally yields to treatment; but, if neglected, may assume the acute form, and prove fatal.

TREATMENT.—I. *Local.* Leeches or cupping-glasses to the tender part of the back. Counter-irritation by blisters, stimulant liniments, or tartar-emetic ointment. For muscular pains, emplastrum belladonnæ or opii.—II. *General.* The bowels must be regulated, and tonics, and sedatives of which henbane is the best, be given in combination. Disorder of the menstrual function must be met by appropriate treatment.

3. RHEUMATIC SPINAL MENINGITIS.

SYMPTOMS.—Diffuse pain, often acute, with tenderness near the

spine; and severe pain along one arm or leg, according as the disease attacks the lower cervical and upper dorsal, or the lumbar region. After a time the pain and tenderness are limited to a spot on one side, near the spine; which is red and tender, and may become the seat of a herpetic rash. The pain in the limbs continues, with numbness and tingling of the fingers, loss of power, or complete paralysis.

PATHOLOGY.—Rheumatic affection of the fibrous tissues of the spinal sheath, and of the tendons of the neighboring muscles; with limited cutaneous inflammation.

CAUSES.—*Predisposing.* Those of rheumatism and gout.—*Exciting.* Exposure to cold and wet. Fatigue.

DIAGNOSIS.—From muscular rheumatism by the local tenderness, and loss of power. **PROGNOSIS.**—Favorable, but guarded.

TREATMENT.—Leeches to the tender spot, followed by warm fomentations; and the remedies for rheumatism. (See Vol. I., p. 332.)

OTHER DISEASES OF THE SPINAL CORD.

Serous effusions occur within the spinal canal, as in the skull; outside the dura mater, within it, or beneath the arachnoid.

Extravasation of blood in the same situations, may be caused by falls, blows, slips, or violent pulling or lifting efforts. But effusion of blood (*spinal apoplexy*) may occur without accident. The symptoms are lumbar pain, spasm of the muscles, palsy of the bladder, rectum, and lower limbs, convulsions or coma, and death.

The membrane of the cord may be thickened and indurated like those of the brain, from the same causes; and fungous growths may form on the dura mater, causing pressure and paralysis. The cord is also subject to atrophy, sclerosis, general or disseminated, hypertrophy, tubercles, carcinoma, hydatids, aneurismal and other tumors.

The *diagnosis* of some of these affections is difficult, the prognosis in all unfavorable, and the treatment chiefly palliative.

The cord is also liable to *concussion* from falls, and to *compression*. In severe concussion, reflex motions of the limbs cannot be excited. The treatment is that of the like diseases of the brain.

A congenital malformation, known as a *Hydrorachis*, or *Spina bifida*, consists in one or more fluid tumors on the lumbar, dorsal, or cervical vertebræ, communicating with the spinal canal. They vary in size, are often transparent, and of a natural, reddish, or livid hue. Pressure causes symptoms of compression. As a rule, the limbs are imperfectly developed, and the rectum and bladder are often paralyzed. The skin may be absent, and the tumor covered only by the membranes of the cord; the pia mater being congested. The spines of the vertebræ are wanting,

or more or less widely separated along the median line. The medulla may be cleft, or even absent. The arachnoid cavity contains a serous, sanguinolent or purulent fluid.

These tumors have been treated, but ineffectually, by pressure, or by pressure following repeated tapplings with a fine needle. When the integuments are absent or thin, a strong shield must be worn.

DISORDERS OF THE NERVES OF SENSATION.

NEURALGIA	Nervous pain.
NEURALGIA FACIEI	Tic Doloieux.
NEURALGIA HYSTERICA	Hysterical pain.
HEMICRANIA	(See Cephalalgia, p. 1.)
NEURALGIA OF PARTS SUPPLIED BY	} Sciatica.
THE LARGER NERVES	
ANÆSTHESIA	Loss of sensation.

NEURALGIA.—NERVOUS PAIN.

Pain is a symptom of almost all acute, and many chronic diseases. When it is a distinct affection of the nerves themselves, it is termed neuralgia. It has its seat in the nerves of common sensation, but may affect those of organic life.

Neuralgia has many causes. It is a common sequence of debility following prolonged lactation, long-continued and excessive discharges, or loss of blood. When confined to one side of the head or face, and intermittent, it is generally to be traced to the same cause as ague. It is often due to remote irritation, and is then termed sympathetic. Thus, pain in the shoulder is sympathetic of disorder of the liver, and pains in the upper arm of diseased heart. In these cases a connection is known to exist between the nerves supplying the organ affected, and those going to the seat of pain; but in other instances no such connections can be traced. Thus, tic doloieux may have for its cause acidity of the stomach, an over-loaded intestine, or a diseased kidney; but may be due to pressure or irritation at the root of a nerve by a spicule of bone, or foreign body—a common cause of the most severe and inveterate neuralgia. Pain in the glans penis from stone in the bladder, pain in the thigh and testicle from irritation of the kidney, pain in the back of the thigh and leg, and verge of the anus from constipation, and flatulent distention of the hollow viscera, as in colic, are examples of neuralgia from pressure, or direct irritation. Other interesting and important pains are termed *reflected*. Their most common seat is the walls of the chest or abdomen, and the left side. (See Vol. I., p. 239.) Pains of the internal viscera, with-

out signs of inflammation, form another class. Intense neuralgia of an intercostal nerve generally precedes shingles. Gastrodynia, enterodynia, and hysteralgia, are examples of pain in the organic nerves of the stomach, intestines, and uterus. Wandering pains in the muscles are common in aged persons, and in younger men through hard work, or after severe illness. Inflammation of the neurilemma, another cause of neuralgia, combines heightened sensibility with pressure. In most cases of neuralgia, no change can be detected in the nerve structure.

NEURALGIA FACIEI.—TIC DOLOREUX.

DEFINITION.—Pain with intervals of perfect ease, in some or all of branches of the sensitive portion of the fifth or trifacial nerve.

SYMPTOMS.—The disease is most common in middle-age, both in men and women. The pain is most acute, comes on at variable intervals, and considerably abates, or entirely disappears, without assignable cause, for days, weeks, months, or even years. At first it is limited to the supra-orbital, infra-orbital, or mental branches, its most frequent seat being the right infra-orbital. It is an acute darting pain, compared to electric shocks, or a severe burning. The pain may be attended by some redness, heat, and swelling of the part. If the eye be affected, there is a large secretion of tears; if the mouth or jaw, a copious flow of saliva. After a time all the branches of the nerve may be affected. If it begin beneath the orbit, it spreads to the upper lip, and thence to the upper and lower jaw; and it may mount over the forehead, spread over the entire scalp, and even for some distance down the spine. The general health is very little affected; the patient, in spite of the most intense suffering, recovers his flesh and healthy aspect in a few days of intermission, and often attains an advanced age.

CAUSES.—*Predisposing.* The female sex; pregnancy; the nervous temperament; anæmia; debility; fear; grief; anxiety.—*Exciting.* Irritation of the root of the nerve, or of one of its branches; inflammation of the periodontal membrane, or a carious tooth; pressure of the bony canal in which the branch lies. Rheumatism.

DIAGNOSIS.—From *hemicrania* and *brow ache*, by the seat and character of the pain.

TREATMENT.—As the sensitive branches of the trifacial nerve pass through bony canals, to be distributed to the teeth, we must examine the gums for traces of inflammation, the mouth for stumps or carious teeth; and if the pain be due to rheumatism of the sheath of the nerve, or of the periosteum lining the bony canals in which its branches run, it will yield to the appropriate remedies. If the pain be reflected from the stomach, bowels, or kidneys, we must treat the indigestion, constipation,

and renal affection. In anæmia, iron alone or combined with quinine is generally successful. The saccharated carbonate or peroxide of iron, and also hydrochlorate of ammonia in doses of 30 grains thrice a day are occasionally successful, especially when the pain is confined to the jaws.

The best local applications are the inhalation of chloroform; or equal parts of chloroform and laudanum, rubbed into the gums, or over the painful nerve, linimentum chloroformi, linimentum belladonnæ, and veratria or aconitia ointment externally.

In a case of many years' standing, which had spread from the right infra-orbital nerve to the upper and lower jaw, over the scalp and down the spine, attended by excruciating suffering, after tonics and narcotics, bleeding, blistering, and salivation had afforded no relief; a stream of cold water poured on the forehead, and allowed to trickle over the face and neck, procured refreshing sleep in about five minutes, had the same effect on a repetition, was followed by the first good night the patient had had for weeks, and by a long interval of comparative ease. In this case the paroxysms were always accompanied with redness of the parts, and increased heat of surface. Where these characters are absent, cold may be expected to prove less efficacious. The patient died ætatis 76, having been a great sufferer for at least 25 years. (G.)

NEURALGIA HYSTERICA.—HYSTERICAL PAIN.

Hysterical women are subject to severe neuralgia, without evidence of local or constitutional disease. It may affect any part; and have its seat in a particular joint or bone; it may be superficial and seem to be imaginary; and disappear when the patient's attention is diverted from it. Rough handling gives no more pain than a slight touch; but that the pain may be both real and severe there is no doubt:—*e.g.* a healthy unmarried woman about forty, complained of intense and constant pain in one knee. There was no evidence whatever of disease. Every kind of counter-irritation and of constitutional treatment had been adopted, and after repeated treatment as an in-patient in the infirmary, the surgeon yielded to her importunities, and amputated the leg. The knee-joint was perfectly healthy, and no disease of its nerves could be detected. After two years she was admitted for a similar pain in the other knee; and she entreated the surgeons one after another to amputate the leg; but they did not yield a second time to her solicitations. In another case there was a most acute pain in a small spot in front of the tibia; and the surgeon, thinking there was an abscess in the bone, trephined, but no disease was met with. The pain soon returned in the part, and continued for more than a year, at the end of which time the surgeon yielded to her wish, and amputated the leg. No cause for the pain could be detected.

In these cases the shower-bath as a tonic, bromide of potassium, and the light application of the actual cautery in lines to the affected part, afford the best chances of relief.

NEURALGIA OF PARTS SUPPLIED BY THE LARGER NERVES.

1. *SCIATICA*.—*Symptoms*. Acute aching or darting pain along the course of the sciatic nerves from the nates to the knee, or even to the ankle: generally increased by firm pressure in the track of the nerve.

2. *BRACHIALGIA*.—*Symptoms*. Pain of the same character as that of sciatica in the brachial plexus itself, or in one of its branches, and usually some tenderness in and near the axilla. When the ulnar nerve is affected, the pain radiates down the inside of the forearm to the hands, and involves the little and ring fingers. It is severe and paroxysmal, and readily excited by cold. After a time, the sensation of the little finger and ring finger is diminished. Some part of the motor fibres are usually implicated; and lead to contraction and diminished power of the fingers, or actual atrophy of the little muscles on the inner or outer part of the hand.

Causes.—In sciatica the pressure of the accumulated fæces; in both diseases, the pressure of tumors on the nerve, and syphilitic or rheumatic affection of the sheath.

Diagnosis.—From *muscular rheumatism* by the pain being limited to the course of the nerve, and being little, if at all, affected by the motion of the limb.

Treatment.—The warm or vapor bath. Friction. Aperients so administered as to keep the bowels free. The general and local remedies recommended in neuralgia faciei. The subcutaneous injection of morphia or atropia at intervals not shorter than three or seven days. For precautions see 16 of the list of narcotics, etc., in the Formulæ.

I have seen several cases of sciatica, unrelieved by the remedies usually given in neuralgia, speedily cured by a few doses of compound colocynth pill, each followed by a black draught. (G.)

ANÆSTHESIA.—LOSS OF SENSATION.

VARIETIES.—*Anæsthesia*, paralysis of the nerves of sensation; *amaurosis*, of the retina; *cophosis* of the auditory nerves; *anosmia*, of the olfactory nerves; *ageusia*, of the gustatory nerves.

Anæsthesia, or loss of common sensation, may occur separately or with palsy of the voluntary muscles; may be general or partial, and may affect one side or both. It is an effect of one form of leprosy, and an oc-

casional results of rheumatic neuritis. Facial anæsthesia is a well-known form of this disease. Numbness, in the hands and forearms, is an occasional symptom in *Mimosis inquieta*. (See Vol. I., p. 246.)

Treatment.—If induced by pressure, the cause must, if possible, be removed; if by deficient supply of blood, stimulants should be resorted to; if by cold, the circulation must be restored. In other cases the treatment will be that of the diseased conditions with which it is associated. It is rare as a separate malady.

ANÆSTHESIA FACIÆ.

SYMPTOMS.—Numbness or total loss of sensation in the forehead, cheek, nose, and chin, on one side of the face; also in the lips, tongue, inside of the mouth and nose, and surface of the eyeball, generally accompanied by paralysis of the temporal and masseter muscles on the same side. This loss of sensibility is sometimes attended by intense pain of the parts affected.

TERMINATIONS.—In some cases ulceration of the cornea and destruction of the globe of the eye.

PATHOLOGY.—Disease, compression, or mechanical injury of the fifth pair of nerves.

PROGNOSIS.—*Favorable*, in the absence of anæsthesia or palsy of other parts. *Unfavorable*, if complicated with disordered functions of other cerebral nerves, or with symptoms of disease of the brain.

TREATMENT.—Leeches to the temples, followed by fomentations. Slight mercurialism; the continuous current. If the disease, in spite of this treatment, become chronic, small blisters in front of the ear, kept open by savin ointment.

DISEASES CHIEFLY AFFECTING THE NERVES OF VOLUNTARY MOTION.

PARALYSIS	{	1. HEMIPLEGIA.	LOCOMOTOR ATAXY.
		2. PARAPLEGIA.	WASTING PALSY.
		3. PARTIAL PARALYSIS.	LEAD PALSY.
		4. FACIAL PALSY.	MERCURIAL TREMOR.
GENERAL PARALYSIS.		CHOREA.	
BULBAR PARALYSIS.		TETANUS.	
SCLEROSIS.		HYDROPHOBIA.	
PARALYSIS AGITANS.		CATALEPSIA.	
INFANTILE PARALYSIS.		HYSTERIA.	
		EPILEPSY.	

PARALYSIS.—PALSY.

Paralysis, although only a symptom of disease, may, like dropsy, be conveniently considered under a distinct head.

VARIETIES.—1. Hemiplegia; 2. Paraplegia; 3. Partial Paralysis; and other forms of palsy, as above.

1. HEMIPLEGIA.

DEFINITION.—Loss of motion, or of motion and sensation, of one lateral half of the body.

VARIETIES.—Cerebral, Spinal, Epileptic, Choreic, Hysterical, and Peripheral.

SYMPTOMS.—In cerebral hemiplegia, the limbs of the affected side, if raised, fall by their own weight; the face usually on the same side is relaxed and void of expression, and drawn to the sound side; the tongue may deviate towards the palsied side; the speech is either lost, or it is thick, muttering, and unintelligible. In rarer instances, the mouth is drawn to the affected side, and the tongue protruded towards the sound side. Digestion is more or less imperfect. The loss of power is generally accompanied by anæsthesia, but in a few instances by hyperæsthesia; the temperature of the affected side is generally lowered, but occasionally raised. The mental faculties are sometimes unimpaired; but they frequently suffer, as shown by impaired memory, confusion of thought, inattention, irritability of temper, and depression. The pulse is often infrequent, but sometimes accelerated; and the breathing slow. The bowels are generally inactive. If the patient do not speedily recover, the palsied limbs shrink and grow cold. When the disease is partial, the arm is more commonly affected than the leg. If the power of the limbs be impaired, but not lost, the arm will be raised with difficulty, and often not without the assistance of the other, the hand cannot grasp firmly, the leg will be dragged after the sound limb, and in walking the patient will be very liable to trip. In patients who recover, the leg regains its power first; so that they can walk about, while the arm still remains palsied; but to this rule there are many exceptions.

Hemiplegia is most common on the left side. It usually occurs suddenly, constituting the “paralytic stroke.”

Spinal hemiplegia.—In this very rare form the face and intellect are unaffected.

Epileptic hemiplegia.—After an epileptic fit, the limbs of one side remain paralyzed for a few minutes, sometimes hours, or days, or even much longer. Recovery usually takes place before the next attack.

Choreic hemiplegia sometimes occurs on that side of the body which is most affected by the choreic movements.

In *Hysterical hemiplegia* the palsy is incomplete, and limited to an arm or leg. In walking the leg is dragged along the ground.

The *Peripheral hemiplegia* of Dr. Todd, or *Creeping palsy* of Dr. Cheyne, commences with the sensations of "needles and pins" in the fingers or toes, and gradually creeps upwards, and, more or less, completely involves the extremities. The affection is occasionally paraplegic.

CAUSES.—Sudden and *complete* hemiplegia, or the "paralytic stroke," is invariably caused whenever the corpus striatum, or any part of the motor tract intervening between it and the medulla oblongata, is ploughed up by sanguineous effusion, as in the graver forms of apoplexy (see p. 13): or when it is subjected to pressure from effusions or tumors in its neighborhood. If the disease come on slowly, it has for its cause a growing tumor or a softening of the nerve tissue. In the latter case, a weakness and numbness of the one side of the body may suddenly lapse into complete hemiplegia, from sudden lesion of the softening fibres without hæmorrhage.

Incomplete hemiplegia is the result of pressure or lesion of one side of the spinal cord, immediately below the decussation of the antero-lateral columns. The paralysis of motion is on the same side as the lesion, the paralysis of sensation on the opposite side.

DIAGNOSIS.—Even in mild cases, cerebral hemiplegia is always associated with more or less paralysis of the face and tongue. In more severe cases the intellect is disturbed, speech is imperfect or obsolete, deglutition is more or less difficult.

In spinal hemiplegia, the head, face, and tongue are unaffected, and sensation is impaired on the opposite side to the paralysis of motion.

Epileptic hemiplegia is of cerebral origin, and may be known by the history of the case.

Choreic hemiplegia is usually associated with some slight jerking movements of the paralyzed limbs; the face is unaffected; and the tongue is usually protruded and withdrawn in a characteristic manner.

Hysterical hemiplegia is known from choreic, by the presence, or previous existence, of hysterical symptoms.

PROGNOSIS.—*Favorable.* Youth; a recent, partial, and incomplete attack, without cerebral symptoms; a return of sensation, tingling, and increased temperature.—*Unfavorable.* In proportion to the age, the duration of the disease, and the degree of paralysis.

With a view to more correct diagnosis and prognosis cases of cerebral hemiplegia may be arranged in three classes.—1. Those in which the muscles of the paralyzed limbs are completely relaxed, the limbs being loose and flaccid, and the muscles wasted.—2. Those in which the paralyzed muscles exhibit a certain amount of rigidity from the moment of the attack or soon after. The muscles retain their plumpness and the limbs resist extension.—3. Those in which the wasted and relaxed muscles acquire, after some time, more or less tension, becoming shortened and

feeling like tight cords. The phenomena of the first class probably result from white softening of the brain. Those of the second class are caused by irritation of healthy brain tissue in the neighborhood of the clot at the time of its formation, and subsequently during the processes of absorption and contraction. The muscular phenomena of the third class result from lesion of softened nerve-fibres, with or without the formation of a clot, the late rigidity resulting from the irritation caused by slow cicatrization of the wound, and the consequent dragging upon the healthy neighboring brain substance.

2. PARAPLEGIA.

DEFINITION.—Loss of motion, with more or less impairment of sensation of the lower half of the body; or of the whole body except the head; or, the head not excepted, coupled with complete insensibility (coma).

The term paraplegia is usually applied to palsy of the lower half of the body.

VARIETIES.—1. Organic, functional, or reflex. 2. From constitutional disorder.

SYMPTOMS.—Like other forms of paralysis, organic paraplegia may occur suddenly or come on gradually. It is not often complicated with head symptoms. The extent of the paralysis will depend on the seat of the lesion. (See p. 8 and 18.) When the disease affects the lower part of the cord, and the paralysis is complete, there is complete loss of sensibility and motion in the lower extremities, with palsy of the bladder and rectum. The patient being confined to the horizontal position, the back and sacrum are apt to slough. The retained urine is generally highly ammoniacal, and ultimately becomes bloody and it is prone to form calculous deposits.

In less complete forms of paraplegia there is weakness of the legs, with a sensation of stiffness and heaviness, numbness, tingling, or formication, and an awkward, straggling, tottering gait. These symptoms gradually increase till perfect paraplegia, with paralysis of the bladder and rectum, results. In many cases the disease does not prove fatal till it has involved the arms, chest, and muscles of respiration. If the disease extend still higher into the cervical region, the roots of the phrenic nerve become involved, and life then necessarily ceases.

In many cases of paraplegia, and especially in the more complete forms, the reflex function remains intact, and irritation of the sole of the foot occasions involuntary muscular contractions. Sometimes these reflex movements are very troublesome, the limbs being affected for hours together with clonic spasm. In paraplegia resulting from spinal concussion reflex movements are absent.

CAUSES.—Injuries to the spinal cord. Chronic disease of the cord

or of its membranes; increasing pressure from growing curvature of the spine; caries of the vertebræ and relaxation of the spinal ligaments; plugging of the aorta.

Functional paraplegia has many causes, amongst which the most common are intense cold, excessive sexual intercourse, masturbation, syphilis—a very frequent cause of organic disease. Many cases of incomplete paraplegia have been referred to nervous action, and have been termed accordingly "*Reflex paraplegia*," or "*Reflex paralysis*." Gonorrhœa, stricture of the urethra, nephritis, cystitis, uterine diseases and displacements, dysentery, dentition, and even irritation of the cutaneous nerves have been mentioned as causes of reflex paraplegia.

In such cases, the paralysis is supposed to be due to the arrest of the circulation in the spinal cord, from contraction of its blood-vessels, the contraction being produced by an irritation transmitted from the nerves of the diseased or irritated surface to the nerves of the blood-vessels distributed to the cord. The arguments in favor of such a theory are as follows:—1. Brown Séquard noticed contraction of the vessels of the pia mater of the cord on applying a ligature to the hilus of the kidney, or to the blood-vessels and nerves of the supra-renal capsules. 2. Violent rigors and even convulsions (affections generally recognized as due to reflex irritation) occasionally attend catheterism or dilatation of the cervix uteri. 3. The absence of anatomical lesions of the cord in such cases of functional paraplegia as have been examined.

PROGNOSIS.—*Favorable*, in functional disorder; but *highly unfavorable* in cases of actual disease of the cord or brain. In the most favorable cases recovery generally occupies weeks or months: in unfavorable cases, the patient may linger for years.

TREATMENT.—For the acute stage, see Apoplexy, Myelitis, Spinal Arachnitis, and other diseased conditions of the brain and spinal marrow.

When the disease has become chronic, we may resort to the astringent chalybeate tonics, such as the perchloride of iron; to the mineral acids; to *quinine* when the system will bear it; but in paralysis from cerebral apoplexy we must intermit its use, if it produces heat and pain of head. *Strychnia*, in doses of $\frac{1}{30}$ of a grain, two or three times a day, cautiously increased to the $\frac{1}{15}$, may be given with advantage. Its action on the system is indicated by twitchings of the paralyzed muscles; but these, taken as indications of returning power, are delusive, as they depend on an affection of the excito-motory nerves. *Tincture of cantharides* (Form. 10) is useful in some cases of paraplegia, especially in that form which depends on disease of the urinary organs. It stimulates the bladder to more healthy action, and in cases dependent on effusion into the sheath of the spinal marrow, may act favorably as a diuretic. *Oil of turpentine*, in drachm doses, suspended in mucilage, may also be given with advantage in the same cases in which cantharides is beneficial.

Paralysis from constitutional disease or reflex action must be treated according to the cause. (See Syphilis, Hysteria, etc.)

As local remedies:—Friction with the flesh-brush, or stimulating liniments; blisters; the actual cautery; electricity. To apply electricity we must include the part we wish to operate upon between the two conducting wires of the battery, one wire or electrode being placed on the affected part, and the other over the nerve-centre or nerve-trunk corresponding to the affected organ. The muscles are excited through the skin.

Electricity may be applied in the following modes: 1. By including the part between two electrodes ending in sponges soaked in salt and water, and inclosed in metallic cylinders. 2. By including the part between two solid metallic electrodes, cylindrical or conical, and moving them rapidly over the affected parts. 3. By the *electric brush*; the sponges being replaced by a brush of fine metallic wires. 4. By placing the hands or feet in two basins of water, each containing one of the electrodes of the battery. The magneto-electric battery is the best generator of currents for medical purposes.

In applying electricity, it should be understood that, when the current is intense, and its action prolonged in the same direction, the excitability of the nerves is much enfeebled; so that to give tone to the nerves, we must pass feeble currents alternately in opposite directions; but with quick intermittencies, to maintain the contraction of the muscle, and increase its force. We thus imitate the voluntary motions. Slow intermittencies only produce trembling.

In anæsthesia, the most intense currents fail, if they do not succeed each other very rapidly. In the treatment of this, as of muscular atrophy, we must use currents with rapid intermittencies, which, it should be understood, are in direct proportion to the rotations of the armature in front of the magnet.

The cases of paralysis in which electricity is beneficial, are those caused by apoplexy of the brain or cord; but it must not be used till all irritation has ceased, until the absence of pain and lax state of the paralyzed muscles show that the clot has been absorbed.

In addition to electricity, we may use salt-water baths, shampooing, the warm or hot-water *douche*, and, when the power of the extremities has in some degree returned, exercise. These remedies also are inapplicable in the early stage of the paralysis that depends on acute disease of the brain or spinal cord. They should not be resorted to till inflammation has ceased, and the disease has become chronic.

When the urine is retained, the catheter should be used at least once a day; and if it become ammoniacal or bloody, the bladder should be washed out with dilute carbolie acid water (1 part in 30). Bed-sores must be carefully prevented by the use of the water-bed or cushion, and by rigid attention to cleanliness.

3. PARTIAL PARALYSIS.

Particular muscles or groups of muscles, and especially the muscles of expression, are subject to paralysis from injury or disease of the nerves distributed to them. Injury or disease of the motor portion of the fifth nerve, gives rise to a less common form of partial paralysis. *Strabismus* may be caused by palsy of one or more of the muscles of the eye. The paralysis of the superior branch of the third or *motor oculi* nerve occasions falling of the upper eyelid and closure of the eye (*ptosis*); and disease of the facial nerve entails, as one of its consequences, an open state of the eye due to paralysis of the orbicularis palpebrarum (*lagophthalmia*); paralysis of the laryngeal nerves occasions *aphonia*; and paralysis of the hypoglossal nerve, loss of speech.

4. FACIAL PARALYSIS.

The *motor* nerves of the face being the portio dura, and the lesser root and third division of the fifth, and the *sensitive* nerves the first and second divisions, with the ganglionic portion of the third division, of the same nerve, it is easy to trace facial paralysis to its source. In complete paralysis of the face the portio dura and motor branch of the third division of the fifth suffer jointly: when the latter only is affected, the motions of the jaw on that side are paralyzed, and there is usually some loss of sensation; but as the disease is confined to the muscles employed in mastication, there is no distortion of feature, beyond a flattening of the affected side of the lower jaw, and of the temple.

SYMPTOMS.—In palsy of the muscles supplied by the facial nerve, the expression is very characteristic. The features are drawn to the sound side, making it appear shorter and narrower than the paralyzed side. The two sides wear so different an expression that the patient is said to laugh on one side and cry on the other. He is unable to frown on the affected side, and when desired to shut the eyes, the eye of the sound side is firmly closed, while that on the palsied side is either partially closed or remains wide open, the pupil, at the same time, being rotated upwards or inwards. In sniffing, the nostril of the affected side collapses; in blowing, the air escapes from the paralyzed side. The saliva may dribble from the palsied side, and the food either slips from the mouth, or collects between the teeth and cheek, which is often bitten. The patient cannot whistle, and when he laughs, cries, sneezes, or coughs, the deformity is increased, the paralyzed side remaining motionless, while the sound side is strongly contracted. The cheek on the affected side is flaccid, and swells during strong expiration. The labial consonants, *b*, *p*, and *f*, are imperfectly sounded; but the patient can speak distinctly when the lower lip on the affected side is supported by the finger. The sensation of the palsied side is generally unimpaired.

The woodcut (Fig. 54) shows the expression of the face in a patient

of King's College Hospital suffering from this disease. The right side is the seat of the paralysis; and the two sides present the striking contrast just described, the right having a sad, and the left a merry, expression—a difference readily perceived by covering one side of the face and then the other.



Fig. 54.



Fig. 55.

The second woodcut (Fig. 55) taken from a sketch of another patient of King's College Hospital, shows the expression of the face during the effort to close the eyes. Here the left side is the palsied one; and the eye of that side cannot be closed, while the right eye is firmly shut. The whole face is drawn forcibly to the sound side, all the features of which are strongly contracted.

Fig. 56 exhibits paralysis of the left facial nerve in a child, with inability to close the left eye.



Fig. 56.



Fig. 57.

These illustrations of paralysis of the facial nerve may be advantageously compared with the woodcut (Fig. 57), which shows the state of the face in a well-marked case of hemiplegia affecting the left side. The

eyelids of the paralytic side are closed, though less firmly than those of the sound side, while the features of the two sides present the same contrast; though in a less degree than in Figs. 54 and 55. (Figs. 56 and 57 are from Marshall Hall's "Principles of Medicine.")

DIAGNOSIS.—In paralysis of the facial nerve alone there is an absence of cerebral symptoms; the face retains its sensibility; the function of hearing is intact: the pupil is unaltered, and the eyesight unaffected (except as the result of the open state of the eye); the muscles of mastication retain their power; the speech is only affected as above stated, and is distinct when the paralyzed lip is supported by the finger. Complication with deafness would show that the other division of the seventh nerve was affected; the addition of anæsthesia that the fifth nerve was also implicated; and cerebral symptoms would indicate that the seat of the disease was within the skull and not external to it. Hemiplegic paralysis is known by disorder of innervation in the limbs.

PTOSIS, or closure of the eye from palsy of the superior branch of the third nerve, is a more serious disease than palsy of the facial nerve, being more probably due to intracranial disease.

PROGNOSIS.—*Favorable.* When the paralysis does not extend beyond the parts supplied by the facial nerve. The disease is often cured in about three weeks or a month.—*Unfavorable.* Complication with paralysis of other nerves, or with disease of the brain.

SEQUELÆ.—Inflammation of the conjunctiva, and in rare cases, ulceration of the cornea, and destruction of the eye, of the affected side.

CAUSES.—Tumors within the cranium, or disease involving the root of the nerve. Wounds and mechanical injuries. Disease of the petrous portion of the temporal bone in the vicinity of the tympanum. The caries resulting from scarlet fever often erodes the wall of the Fallopian canal, and the nerve, being laid bare, its function is lost. Pressure due to tumors of the parotid; effusions into and around the sheath of the nerve. Cold winds.

TREATMENT.—Simple paralysis of the face is best treated by small doses of mercurial preparations carried to the point of producing slight salivation. If intracranial disease be the cause of the palsy, and febrile symptoms be present, cupping or leeches behind the ear, followed by a blister to the same part, and preparations of iodine and mercury.

Parotitis must be treated as recommended under that affection. Caries of the internal ear, by daily injections of warm water, followed by weak solution of sulphate of zinc, by tonics, and attention to the general health.

GENERAL PARALYSIS, OR PARALYSIS OF THE INSANE.

DEFINITION.—A form of progressive paralysis attended by gradual loss of mental power.

SYMPTOMS.—These first appear in the tongue, causing indistinctness of speech and faulty or stammering pronunciation; it affects the muscles of both sides of the face, impairing the power of expression, and thence extends to the whole of the muscular system. The commencing palsy of the legs is indicated by slight lameness and occasional tripping, and that of the arms by the frequent dropping of food and other objects from the hand. The progress of the disease is gradual, but it terminates at length in complete paralysis, with palsy of the bladder and sphincter ani, of the muscles of deglutition, and of respiration. The patient often dies asphyxiated. The sensibility is little impaired. The common duration of this malady is four or five years. The palsy of the muscles is accompanied by loss of mental power.

PATHOLOGY.—Degenerative change in the gray matter, resulting from constitutional disease, or concussion of the brain.

MORBID ANATOMY.—Osseous cicatrices, adherent dura mater, thickening and opacity of the meninges, chronic effusion of fluid into, and granular deposit upon, the surfaces of the ventricles.

DIAGNOSIS.—This disease usually affects the male sex, and individuals in the prime of life. An able, intelligent man becomes unmindful of his work, and soon unable to attend to it. He sits listlessly with his hands before him, and his mind vacant. Sometimes he is mischievous, rarely dangerous. Imperfect speech and tottering gait attend loss of memory, and then the patient passes more or less rapidly into a state of imbecility.

In many cases, the cerebral symptoms are much in advance of those of the spinal.

PROGNOSIS.—Being dependent on progressive degeneration of the brain, it does not admit of cure.

TREATMENT.—That of cerebral softening (see p. 17).

PARALYSIS LABIO-GLOSSO-PHARYNGEA. PROGRESSIVE BULBAR PARALYSIS.

DEFINITION.—Increasing defect of speech and of deglutition, from diseases of the motor centres in the medulla oblongata, and usually associated with general paralytic symptoms and imbecility.

SYMPTOMS.—Defective articulation, a monotonous nasal voice (imperfect modulation, frequent tendency to choking (imperfect deglutition), and weakness of the muscles of mastication, and labiation, attended with salivation, are the earliest indications of the disease. Emotional disturbance, with a tendency to crying, or more rarely, laughter, and general muscular debility often supervene. Progressive muscular atrophy and mental weakness attend the increased difficulty of articulation and deglutition. The atrophied tongue lies motionless or slightly quivering

on the floor of the mouth, incapable of protrusion; a constant flow of ropy saliva requires the constant use of the handkerchief. Later on paralysis involves the respiratory function, and, if the mind remain clear, as it does in some cases, there is a great fear of death by suffocation. The progress of the malady is variable. Three years may, perhaps, be taken as the average duration.

MORBID ANATOMY.—Atrophy of the nerve nuclei in the floor of the 4th ventricle, and of the nerve fibres connected with them. This is usually associated with diffuse sclerosis of the medulla and spinal cord. Atrophy of the muscles of the thenar and hypothenar aspects of the hand is not uncommon.

PROGNOSIS.—Very unfavorable.

CAUSES.—A nervous temperament with advancing age. The disease is rare before 40. In all prolonged emotional excitement, or exhaustion from anxiety and loss of sleep are exciting causes.

TREATMENT.—Tonics, especially iron and strychnia, sedatives if required, quietude, with agreeable diversion of the mind.

An acute form of the disease—*acute bulbar myelitis*—has been described. The local paralytic symptoms appear suddenly, and deglutition soon becomes nearly impossible, the breathing irregular and oppressive, and the distress is increased by hiccough, frequent vomiting, and fits of suffocating coughing.

MULTIPLE SCLEROSIS.

DEFINITION.—A decidedly chronic degeneracy of the brain and spinal cord, or of either separately, producing partial or general paralysis, with or without loss of intellectual powers corresponding to and co-extensive with the morbid changes.

SYMPTOMS.—Extremely variable, according as the cord or brain is most involved; and as the disease is localized or generally distributed. Motor paresis, increasing to paralysis, beginning in one leg and extending to the other and to the arms; tremor of the limbs, or of the whole body on making a voluntary effort (volitional tremor); marked increase of tendon reflexes, making the gait very stiff, the feet seeming to cling to the ground, and toes catching every obstacle; and irritable contracted condition of the muscles; the legs feeling hard and rigid when the least attempt is made to use them, are amongst the earliest and most constant symptoms. Inability to co-ordinate movements, and disturbances of sensation—paræsthesia, sometimes passing into anæsthesia, appear sooner or later as the paraplegia advances. Diplopia, nystagmus, often very marked, and amblyopia may be looked for. The voice too, may become weak and monotonous, and the speech slow and indistinct. Later on the intellect may be involved, indicated by loss of memory. Emotional

disturbances, insomnia, headache, and melancholia, attacks of vertigo, and even of apoplexy, occasionally supervene.

MORBID ANATOMY.—The altered condition of the nervous tissue is obvious to the naked eye, as grayish yellow or salmon-colored spots or nodules, varying in size from a grain of rice to an olive, scattered through any or every part of the nervous system. They are usually well defined, and of a dense, often leathery consistence, distinguishable by both the finger and the knife. Very rarely they are of gelatinous consistence; they may be discrete or confluent. Under the microscope, increase of connective tissue, with many lacunar cells, and the atrophy and disappearance of nerve cells and fibres are witnessed. Corpora amylacea, fat and granule cells, with degeneration of the walls of the blood-vessels indicate an advanced stage.

CAUSES.—The chronic inflammation in which the morbid changes begin, are those which have been mentioned under Myelitis.

DIAGNOSIS.—The tremor which is initiated by voluntary movement, subsiding during rest, serve to distinguish multiple sclerosis from locomotor ataxia and chorea; but it is difficult, if not impossible, to draw a distinction between this disease and paralysis agitans, and probably no real pathological difference exists between them.

TREATMENT.—In the early stages, that of myelitis, and in the latter that of paralysis agitans.

PARALYSIS AGITANS.—SHAKING PALSY.—THE TREMBLES.

SYMPTOMS.—Weakness and trembling, usually commencing in the hands and arms, but sometimes in the head, and gradually extending over the whole body. At length the trembling becomes incessant; and when the patient attempts to walk, "he is thrown on the toes and fore part of the feet, and impelled unwillingly to adopt a running pace, being in danger of falling on his face at every step." In a still more advanced stage, the shaking continues during sleep: the patient cannot carry food to the mouth; and mastication and deglutition are performed with difficulty. The agitation at length becomes so violent as to prevent sleep; the body is bent forward with the chin upon the sternum; articulation is impaired or entirely lost; the urine and feces pass involuntarily, and coma and slight delirium close the scene. In some cases the muscles of respiration are affected, and the breathing becomes extremely frequent. (In one case occurring in a vigorous young man, 73 in the minute, with a pulse of 72.—G.)

MORBID ANATOMY.—Multiple or diffuse sclerosis, chiefly or exclusively confined to the anterior gray columns of the cord.

DIAGNOSIS.—Tremor, and a shuffling, hurried gait and speech. Sclerosis is described at p. 37. It is distinguished by a progressive muscu-

lar weakness, increasing to paralysis; whereas, in paralysis agitans the tremor always appears first, and the paralysis is usually long postponed.

PROGNOSIS.—Unfavorable in old persons. Less unfavorable when, as in rare instances, it occurs in persons in the vigor of life.

CAUSES.—*Predisposing.* The male sex, advanced age.—*Exciting.* Violent exertion, metal or muscular; cold, rheumatism.

TREATMENT.—In persons advanced in life a combination of stimulants and sedatives is indicated. Conium and henbane are useful in the early stage; preparations of iron and galvanism in the latter.

INFANTILE PARALYSIS.

This has been described under the term *Polio-myelitis anterior*. It consists in more or less complete and chronic hemiplegia, with atrophy of the paralyzed limbs.

SYMPTOMS.—After a convulsive attack, attended with coma, more or less prolonged, the little patient recovers consciousness, and it is then discovered that there is loss of one side of the body, or of an arm or leg. The subsequent progress of the case is precisely that of ordinary hemiplegia. Sometimes the recovery is complete, but usually a certain amount of paralysis remains, and in some cases the arm or the leg may remain ever after perfectly useless, in which case the whole member remains atrophied.

PATHOLOGY.—It is commonly assumed that this affection is due to an acute myelitis of the gray anterior columns of the spinal cord; but all my cases tend to prove that the affection is a cerebral one, and that, as in ordinary hemiplegia, the lesion occurs in the corpus striatum of the opposite side. During an attack of ordinary convulsions, from dentition for example, blood is extravasated, and a portion of the motor tract corresponding to the lesion is torn across.

TREATMENT.—That of cerebral irritation in the early stage, and of hemiplegia in the later.

LOCOMOTOR ATAXY.—TABES DORSALIS.

DEFINITION.—An affection of the lower extremities not amounting to paralysis, but consisting of a want of co-ordinating power.

SYMPTOMS.—The muscular contractions are still, to some extent, obedient to the will, nor is there want of strength; but the movements are clumsy, staggering and uncertain, and the patient cannot walk steadily unless he *looks* at his legs, in order to guide their movements. He

has great difficulty in rising from his seat, and in turning round is apt to fall. The disease may affect the muscles of the upper extremities, in which case the movements of the arms and the hands become awkward and fumbling. There is no direct muscular wasting.

Diminished sensation is a constant attendant on this condition, and is generally proportionate to the want of co-ordinating power.

Lancinating pains in one or both of the legs occurring at intervals, and with every change of weather, or after exertion, almost invariably attend the disease in the earliest stages, and may exist without any other indication for years. Slight defects of sight and hearing are not uncommon, and progressive blindness is an occasional complication. The mind, usually clear, is also subject to a gradual impairment.

DIAGNOSIS.—The “ataxic gait.” There is little if any loss of power in the leg, but their movements are clumsy and wide of the mark; the toes are thrown upward, and the heel is brought down with a stamp, and the eyes are vigilant to sustain the tottering body.

PROGNOSIS.—Most unfavorable.

CAUSE.—Over-exertion and exposure to cold and damp are predisposing causes; direct injury or irritation of the cord and venereal excesses and syphilis the exciting. Men between the ages of thirty and forty are the most liable to the disease.

PATHOLOGY.—Chronic myelitis of the posterior columns involving the bundles of the posterior nerve-roots, and the posterior gray horns, also resulting in atrophy of the nerve fibres, and cells with shrinking and hardening of the affected part, which becomes grayish yellow and translucent, and frequently exhibits a number of corpora amylacea. The upper lumbar and dorsal regions of the cord are those usually affected.

TREATMENT.—Some good may be expected from the judicious use of galvanism and alterative tonics.

WASTING PALSY.—SPINAL SCLEROSIS.

This is a form of partial or general paralysis, slowly progressive, and invading particular groups of muscles, or the whole of the muscular system, the intelligence remaining intact.

PATHOLOGY.—The affected muscles slowly waste until they are reduced to pale cords streaked with fat, or to mere bands or membranes composed chiefly of fibrous tissue.

The muscles of the upper extremity are most liable to the disease, and those of the ball of the thumb are most commonly affected. The hand, through the wasting of its muscles, comes to resemble the foot of a bird—the “*main en griffe*” of French writers. When the muscles of the face are affected, expression is lost, and but, for the motion of the eyes, the countenance is as fixed as that of a statue. The accompanying figure, from the photograph of a patient who was for many years under my care at

St. Thomas's Hospital, well illustrates the outward signs of spinal sclerosis. The hands and legs are quite bird-like, and from atrophy of the muscles of the leg and foot he was unable to stand, unless the feet were braced in stout boots.

The brain is unaffected, and the general health good.

MORBID ANATOMY.—General or local atrophy of the anterior roots of the nerves, and of the antero-lateral columns of the cord, increase of the neuroglia and atrophy of groups of the nerve vesicles. The deposit of semi-translucent, tough, grayish nodules varying in size from a millet seed to a hazel nut, composed of connective tissue (interstitial chronic myelitis).



Fig. 58.

DIAGNOSIS.—The muscular wasting and the retention of co-ordinating power distinguish this form of disease from locomotor ataxy.

PROGNOSIS.—Unfavorable.

CAUSES.—Injury either of a particular nerve trunk or of the spinal cord itself. Plumbism, Syphilis.

PATHOLOGY.—Sclerosis of the anterior nerve roots and anterior cornu, the result of chronic myelitis.

TREATMENT.—Galvanism. Iodide of potassium in the toxic form.

LEAD PALSY.—DROPPED HAND.

SYMPTOMS.—The hands are generally first affected, and in some cases the forearm also suffers. The disease begins by weakness in the fingers, extending to the wrists, but rarely beyond them, accompanied by shooting pains in the forearms, arms, and shoulders. The parts affected gradually waste partly from disuse, and the hands drop powerless at the wrists. The disease is generally preceded by one or more attacks of colic, but may occur independently of it. Fig. 59 represents the condition in a painter age 54. The extensors of the right forearm are the weaker, the margins of the gums are bluish-black. He has had several attacks of colic, and wrist-drop twice. The knuckles are enlarged by chronic rheumatic arthritis.

DIAGNOSIS.—The history of the case. The seat of the palsy, assisted in many cases, by the discovery of a blue line on the margin of the gums.



Fig. 59.

PROGNOSIS.—Favorable in first attacks and in slight cases. In some cases recovery after prolonged treatment. Sometimes incurable.

CAUSES.—The employments of the plumber and glazier, oil-painter, and enamel-card maker. Fishmongers who use lead counters, men employed in lead works, and persons who drink cider made by presses repaired with lead. Water kept in new leaden cisterns, or conducted through new leaden pipes, the danger being, as a general rule, in proportion to the purity of the water.

PATHOLOGY.—The presence of lead in the blood and nerve tissue.

TREATMENT.—*Indications.* I. To eliminate the poison from the system. II. To rouse the paralyzed muscles to action. To attain the first object we may give iodide of potassium in five-grain doses. Sulphur baths (Form 301), or the vapor of sulphur. The second object may be attained by electricity, shampooing, friction with the flesh brush, or with stimulating liniments; and by the internal administration of strychnia (Form. 18). Electricity is a very valuable remedy in this disease.

The current should be feeble and the intermittencies very rapid, and it should be passed in succession through individual muscles.

PROPHYLAXIS.—In lead words, the use of a respirator of moist flannel. Scrupulous washing of the hands.

TREMOR MERCURIALIS.—MERCURIAL TREMORS.

SYMPTOMS.—This disease usually shows itself first by weakness in the arms, which gradually increases. It is accompanied by slight convulsive twitchings, followed by tremors, increasing in violence till the patient is obliged to abandon his occupation. The trembling gradually extends to the legs, and at length to the whole body. It is brought on by every attempt to move, but it ceases when the limbs are supported, and the body is at rest. The patient dances rather than walks; he is unable to grasp objects; his speech is hurried and abrupt, and in extreme cases he cannot even masticate. If the patient continue exposed to the poison, restlessness, sleeplessness, and delirium supervene. Salivation is only occasionally present. The general health is impaired, and there are nausea and anorexia, a dry skin and a furred tongue; but there is no disorder of the circulation, or respiration, and no colic. In very mild cases, especially when they occur in women, the symptoms are those of *Mimosis Inquieta* (see Vol. I., p. 246).

Among the minor effects of working with mercury is a peculiar brittle state of the teeth, causing them to chip and decay.

DIAGNOSIS.—From *paralysis agitans*, by the history of the case, and the absence of trembling when the limbs are supported.

PROGNOSIS.—Favorable when the cause is excluded.

CAUSES.—The process of water-gilding; employment in quick-silver mines; long exposure in any way to the fumes of mercury, or to the absorption of the oxide by the skin.

TREATMENT.—A temporary cessation of employment; a combination of tonics and sedatives; preparations of iron; a generous diet, with a moderate allowance of wine; the shower-bath.

PROPHYLAXIS.—Cleanliness and free ventilation of workshops, with an arrangement by which the fumes can be carried off, such as a funnel terminating in a chimney; eggs swallowed two or three times a day, the free use of milk as an article of diet. Those who handle mercury should use gloves.

CHOREA SANCTI VITI.—ST. VITUS'S DANCE.

DEFINITION.—Functional derangement of the motor nerves resulting in irregular jerking movements, interfering with voluntary action.

SYMPTOMS.—The disease generally sets in with slight convulsive movements of the face or of one of the legs, which gradually extend and

increase in severity until they involve one side of the body or the whole frame. When the disease is fully formed, the patient is in almost constant motion; the head is jerked to one side; if standing, the foot shuffles and scrapes the floor. The walk is hurried and uncertain; sometimes the affected leg is not lifted but dragged along, as if the whole limb were paralytic; and when an attempt is made to lift it the limb becomes irregularly and ludicrously agitated. Even when the extremity is at rest, the foot is often turned alternately outwards and inwards. The arm of the same side is similarly affected, so that in trying to raise anything to the mouth, the patient often jerks it over the head, and succeeds only after repeated attempts; and swallowing is performed hastily and with ludicrous grimaces. If the patient be told to hold the arm extended, he cannot keep the fingers steady, but the arm is soon withdrawn, the movement being generally accompanied or followed by a grimace. The muscles are usually quiet during sleep; but there are exceptions to this rule. The health is generally only slightly impaired; but constipation is an almost constant symptom, and there is sometimes loss of appetite, a foul tongue, and offensive breath. In females, the uterine functions are sometimes disordered. Incoherence is an occasional accompaniment. A bellows murmur is often heard over the heart.

The tongue is commonly more or less involved. In severe cases speech is occasionally lost; there is inability to maintain the erect, or even sitting posture, and the patient is incapable of attending to his common wants. In a small proportion of cases, the intellect is involved, and the patient becomes obstinate, wayward, and morose.

The disease affects weakly boys and girls, but rarely attacks adults, and when it does so, the choreic movements are limited, and commonly affect the sterno-mastoid and trapezius, and later on the deeper muscles of the neck, of one side, producing the condition known as *spasmodic torticollis*. The following is a good illustration:—A maiden lady, aged 60, had been affected for two years with convulsive movements of the muscles on the right side of the neck, twisting her face during her waking hours towards her right shoulder. While in this position, it was jerked fifty times a minute still farther backwards. Sometimes the head was jerked suddenly backwards. When walking she was impelled to go fast, and sometimes stumbled. There was no evidence of cerebral or spinal disease; the health was otherwise good, and she took regular exercise. When her attention was engaged the movements decreased. During sleep, and when the attention was fixed, as in reading, the convulsive movement ceased. The affection commenced by a screwing of the right side of the face into pillow at night. It was removed by the internal administration of sulphate of copper and the use of the sponge bath.

Chronic choreic movements of sets of muscles (such as those of a shoulder) is not uncommon in adults, and the affection is intractable.

CAUSES.—*Predisposing*. General weakness and irritability of the

nervous system ; youth (from 7 to 15 years) ; female sex. It may occur in adults of both sexes to the age of seventy.—*Exciting.* Intestinal irritation from constipation or worms ; uterine irritation ; strong mental excitement, as from fright or anger ; blows or falls ; irritation of the spinal cord or its membranes, fatigue. In many cases rheumatism precedes the disease, or is associated with it, and is therefore held by some physicians to be a cause of chorea as well as of the cardiac disease which frequently accompanies it.

PROGNOSIS.—Favorable in the great majority of cases.

TREATMENT.—*Indications.* I. To remove causes of irritation. II. To improve the general health.

I. By far the most common cause of irritation is in the bowels, and purgatives, judiciously and perseveringly administered, are the chief remedies. A dessert or table-spoonful of castor oil, or other simple aperient, may be given every, or every other morning. More active purgatives may be used if necessary. The bowels should be kept open once or twice daily, but hypercatharsis should be carefully avoided. (I have never given any other medicines in chorea but aperients ; and one of the worst cases I ever saw, one which combined constant restlessness and grotesque actions of the muscles, with mental incoherence, was cured within ten days by aperient medicines alone.—G.)

Hemlock is a valuable remedy when the disease arises from centric irritation. From 3 iss. to 3 vi. or more, of the succus conii, may be given once, twice, or thrice daily.

If the source of irritation be in the uterus, remedies appropriate to the disorder of that organ must be given. If there be tenderness of the spine, the case should be treated as one of spinal irritation.

II. The general health may be improved by tonics, of which arsenic, sulphate and valerianate of zinc, ammonio-sulphate of copper, and sulphate of peroxide of iron, in full doses, are the best, aided by cold affusion or the shower-bath, with nourishing diet, fresh air and regular exercise. It is surprising how well large doses of arsenic are borne in many cases of this disease ; they should, however, be gradually increased. Arsenic improves the secretions and keeps them free.

TETANUS OR TRISMUS.—LOCKED JAW.

VARIETIES.—1. Traumatic Tetanus. 2. Idiopathic Tetanus (including Tetanus neonatorum).

SYMPTOMS.—In most cases the onset of the disease is obscure. Traumatic tetanus is generally preceded by pain at the seat of the injury. In both forms, the first symptom is usually a sense of stiffness in the nape of the neck, rendering the motion of the head difficult and painful. This is soon followed by a sense of tightness and stiffness in the lower jaw,

with difficulty in swallowing. The patient also complains of pain, often violent, referred to the sternum, and thence shooting to the back. This is followed, after a variable interval, by increasing rigidity of the lower jaw, and by spasms of the muscles of the neck, pulling the head strongly backwards. The teeth at length become closely and firmly set, when the affection is called *trismus* or *locked jaw*; and the features gradually stiffen into a ghastly fixed smile (*risus sardonius*).

As the disease advances, the muscles of the trunk and spine become involved, so that the whole body is bent forcibly backwards (*opisthotonos*), or forwards (*emprosthotonos*), or to the side (*pleurosthotonos*).

At length the disease extends to every organ of voluntary motion; the limbs are rigidly extended; the abdominal muscles strongly contracted; the eyes fixed; the forehead furrowed; the jaws strongly closed, and the angles of the mouth powerfully retracted and wrinkled, producing the sardonic grin. These violent contractions occasion the most excruciating pain. The pulse is accelerated, the respiration suspended or laborious, and the skin covered with a profuse hot perspiration. A partial remission of the symptoms occasionally takes place every ten or fifteen minutes, but they are renewed, with aggravated torture, on the slightest disturbance, even the least motion of the body, or the touch of an attendant. If the patient fall asleep, the muscles relax.

In fatal cases, the symptoms rapidly increase in severity; there is urgent dyspnoea, with an agonizing sense of suffocation; a cold clammy sweat; a small and imperceptible pulse; froth or bloody mucus in the mouth; the countenance becomes livid; delirium sometimes supervenes, and the patient dies exhausted, or suffocated by the rigid spasm of the muscles of respiration. The mind in most cases remains intact to the last.

The *duration* of the disease varies. One case of acute tetanus is on record which proved fatal in a quarter of an hour; the common duration of fatal cases is from four to eight days. In cases of recovery, the duration varies from a week to two or three months.

LATENT PERIOD.—From a few minutes to ten weeks. Most common period from the fourth to the fourteenth day.

CAUSES.—*Predisposing.* The male sex; robust and vigorous constitution; warm climates; the period of infancy.—*Exciting.* Vicissitudes of temperature; exposure to cold and damp, or to excessive heat; great fatigue; wounds, especially punctured wounds of the extremities; injuries of nerves or tendons, by puncture or laceration; irritating, indigestible food in the alimentary canal (the common cause of the *tetanus neonatorum*); irritation of the extremities of the nerves; affections of the mind; strychnia and other vegetable poisons, and also the more active metallic ones.

MORBID ANATOMY.—Not constant. In some cases increased vascularity of the spinal cord and its membranes; but in many instances those

parts are perfectly healthy, the disease being due to some remote irritation conveyed to the spinal marrow, and reflected on the muscles. Traces of injury to the nerves in cases of traumatic tetanus. The muscles often ruptured and gorged with blood.

DIAGNOSIS.—From the *effects of strychnia* by the obscurity of the first symptoms, their slow development, and local character (the stiffness of the jaws and difficulty of swallowing preceding, often by a long interval, the affection of the muscles of the trunk and extremities); also by the interval of several hours or days which elapses in tetanus before the patient dies or recovers; to this rule there are a few exceptions in cases of injury to the spine. Strychnia, on the other hand, is fatal in from a quarter of an hour or less to within three hours. From *tetanic* spasms following the action of other poisons by the coincidence in such cases of other characteristic effects of the poison.

PROGNOSIS.—Extremely unfavorable; more so when the disease arises from wounds or injury to the nerves than when proceeding from cold; when it comes on suddenly, and soon after the receipt of an injury, and rapidly increases in severity, than when slow in its progress; when the spasmodic contractions quickly succeed each other, and are excited by very slight causes, than when there is a considerable interval. Survival beyond the fourth day is a favorable circumstance.

TREATMENT.—To be directed to the relief of the excitement of the motor function of the cord by means of conium, tobacco (*Enema tabaci*), or the Calabar bean ($\frac{1}{16}$ to $\frac{1}{4}$ grain of the extract), remedies which act directly in repressing convulsive action. The object of these remedies is to produce muscular relaxation. Conium is the most appropriate. If the patient can swallow, 3 iij.—3 viij. of the succus conii may be given at intervals of a few hours. If the medicine cannot be given by the mouth, it may be injected into the rectum.

There is reason to believe that electricity properly applied might prove advantageous. When a continuous current of electricity is passed along a nerve, its excitability is diminished; and M. Remack thought that he could prove in man that these currents possessed the property of causing involuntary contractions to cease by preserving to the muscles the faculty of obeying the will. Nobili and Matteucci have succeeded in relaxing muscles affected with tetanic spasm by passing a current through them, the direction of which was the reverse of that which naturally circulates in the nerves. We may, therefore, hope to control the excessive electrical excitement of the spinal cord by passing through it a continuous current, from a voltaic pile or trough, taking care that the conductor in connection with the zinc plates be placed at the top of the spine and the other lower down, or upon the surface of the limbs, in succession. In order to bring the cord within the more immediate influence of the current, a stout needle or two in connection with the conductor may be passed through the integument and muscles covering the spine.

If the paroxysms be very severe and painful we may anticipate them by bringing the patient under the influence of chloroform, until the muscular relaxation has been induced by conium. But it is worse than useless to persevere with this remedy.

If there be any heat or tenderness of the spine, a bladder of ice may be applied to the whole length of it.

The rest of the treatment will consist in giving wine and nourishment at short intervals, and keeping the patient as quiet as possible.

If the mouth continue firmly closed, food and medicines must be given by means of flexible tube passed through the nostrils, or behind the last molar tooth, or by enemata.

TETANUS NEONATORUM.—INFANTILE TETANUS.

SYNONYM.—Trismus nascentium.

SYMPTOMS.—In the second or third week after birth, tetanic spasm, beginning in the muscles of the jaw, and thence, in some cases, extending to the whole body, and proving rapidly fatal.

CAUSES.—Improper diet, as in the Westmann Islands, off the coast of Greenland, where the food of children consists almost exclusively of fish; intestinal irritation in hot climates; the impure air of crowded foundling and lying-in hospitals. Intense cold.

TREATMENT.—An aperient, a drachm of castor oil, at once followed by a warm bath. ℥xv. to lx. of the succus conii every 4 or 6 hours. The diet should be restricted either to the mother's milk, or to that of the cow.

HYDROPHOBIA.—CANINE MADNESS.

DEFINITION.—Intense excitability of the nervous system, with irritation of the fauces acting on the spinal cord through the incident nerves, and giving rise to reflex spasms of the muscles of deglutition.

SYMPTOMS.—At an uncertain interval after the bite of a rabid animal, pain, stiffness, or some unusual sensation, often accompanied by inflammation, is felt in the seat of the wound, followed, in many cases, by pains darting thence along the nerves. These local symptoms are not always present. After a few hours or days, wandering pains are felt in different parts of the body, with stiffness of the neck and throat, restlessness, irritability, and drowsiness; the spirits are depressed; there is frequent deep sighing, and the sleep is disturbed with frightful dreams.

The true nature of the case is first revealed by an unusual difficulty in swallowing liquids, which increases till it becomes intolerable. The moment any fluid is brought near the patient, or the motion of the fluid is heard, he starts with horror; and the attempt to swallow is hurried,

accompanied with sobbing or deep-catching sighs, and followed by convulsions.

There is intense irritability; the countenance expresses great anxiety, alarm, and suspicion, the eyebrows are contracted, the eyes wild, staring, and glassy; there is intolerance of light and sound, urgent thirst, a parched tongue, a hot and dry skin, and retching. The sufferer often screams violently, talks in a loud, authoritative tone, and spits out the viscid saliva between his closed teeth, with loud and noisy strainings, not unlike the barking of a dog. In spite of these severe sufferings, the mind may remain unaffected to the last, but in some cases the patient lapses into wild delirium, talks incessantly and incoherently, and is in a state of the most distressing restlessness; the slightest motion, a sudden change of posture, a breath of air, a ray of light, a polished surface, the least noise, will excite a sensation of suffocation or convulsions; in some cases delirium takes place, the convulsions become more frequent, and the patient dies convulsed, exhausted, or asphyxiated.

DURATION.—Generally from two to three days. In one case, thirty-six hours; in rare instances, eight or nine days.

LATENT PERIOD.—From three or four weeks to some months, or even years; most common period from twenty to forty days.

DIAGNOSIS.—The disease cannot be confounded with any other. The cause and symptoms are alike peculiar and characteristic.

PROGNOSIS.—Fatal. The disease has hitherto defied all remedies.

MORBID ANATOMY.—Not constant. Slight traces of inflammation in the spinal marrow and its membranes. Inflammation of the fauces and air passages, with increased secretion.

TREATMENT.—*Indications.* I. To prevent the absorption of the poison. II. To remove the irritation of the throat. III. To diminish the excitability of the nervous system.

I. Persevering suction of the wound should be used without a moment's delay; this should be promptly followed by excision of the part, and the subsequent application of a poultice. If this cannot be done at once, and the wound is on the arm or leg, a ligature should be applied above the wound. This treatment is to be preferred to the use of caustic.

II. The second indication is best fulfilled by constantly swallowing ice.

III. The third indication may be fulfilled by powerful doses of conium alone, or in combination with opium. Chloroform is a very useful palliative.

Ice was swallowed with great advantage in a remarkable case admitted to King's College Hospital, under the late Dr. Todd. The patient, a boy seven years of age, laboring under hydrophobia in its most marked form, and refusing, with characteristic horror and impatience, everything previously offered him, whether in a liquid or solid form, and who had taken

ten drops of dilute hydrocyanic acid, repeated at short intervals, and at length twenty drops in one dose, without apparent effect—after the most severe convulsive paroxysms which had yet seized him, was offered a fragment of rough ice. This he swallowed with avidity. Fresh pieces were swallowed with the greatest ease. In less than half an hour, he had taken about a pound and a half of ice. At the same time that it was given internally, a bladder containing a mixture of broken ice and common salt was applied to the whole length of the spine and around the throat. Under the external and internal application of cold, all the symptoms of hydrophobia referable to the throat and chest, with the exception of occasional hawkings, had passed away; the viscid mucus no longer flowed from the mouth, the mucous râle disappeared from the chest, and nothing remained but extreme restlessness, violent excitement, and incoherence. The patient sat up in bed with a large fragment of rough ice in each hand, talking incessantly and incoherently in a loud voice, and showing an aimless eagerness. The intense excitement continuing, and all the peculiar symptoms of hydrophobia having subsided, the cold *douche* was applied, but the system did not rally from the shock. (See *Lancet*, January 22, 1842).

I am inclined to attribute more benefit to the internal than to the external use of ice in this case, but the joint administration, while the rest of the body is kept warm, seems to be the most rational treatment yet recommended. It may not save life, but it will certainly mitigate suffering. (G.)

KAKKE,¹ OR ISERIBERI.

This remarkable disease, to which our attention has been lately directed, has been long recognized in China, Japan, India, Ceylon, and the southern parts of Brazil. I extract the following brief notice of it from an article by Dr. W. Anderson, published in vol. vii. of St. Thomas's Hospital Reports, and embodying his experience of the disease in Japan:—

DEFINITION.—A recurrent, non-febrile, non-contagious disease, endemic in low-lying, over-crowded, badly-drained districts, characterized by temporary anæsthesia and motor paralysis, most commonly affecting the extremities, and a tendency to serous effusion—especially hydro-pericardium with cardiac disturbances, syncope, and death.

SYMPTOMS.—The illness usually begins with numbness and weakness of the legs, the integuments over the tibia pit slightly on pressure, the numbness extends to the tips of the fingers and the lips. There is general debility and great muscular fatigue; palpitation, usually associated with anæmia; anæmic-cardiac bruits, and in the acute form of the disease a rapid and irregular action of the heart, with palpable thrill, loud dif-

¹ The Japanese pronunciation of two Chinese characters signifying leg-disease

fuse murmurs, and signs of pericardial effusion. Febrile disturbance is exceptional. A rise of 2° to 4° Fahr. is occasionally seen, but its subsidence does not coincide with or herald any marked change in the other symptoms, and when acute symptoms set in, the temperature usually falls 1° or 2° , or even more, below the normal level. Vomiting sometimes occurs early, sometimes immediately precedes the cardiac symptoms, and is apparently of central origin. The urinary secretion is normal. The average duration of the disease is about five weeks. In the chronic forms of the disease there is a progressive wasting of the muscles, nearly always associated with tenderness and cramps.

PATHOLOGY AND MORBID ANATOMY.—The early anæsthesia and paresis, increasing in some cases to actual palsy, and resulting muscular atrophy, point to congestion of the spinal cord passing into a chronic partial myelitis. Hitherto autopsies have been rare, and have only revealed dropsical effusions.

CAUSES.—As the disease is endemic only in the low-lying, ill-drained, and over-crowded parts of great cities, such as Kiyosto, Osaka, and Yedo, it may fairly be assumed to be due to a neglect of hygiene, and not to the development of any specific poison.

TREATMENT.—As the disease is associated with debility, iron and strychnia have proved beneficial. Aconite is serviceable in relieving the muscular tenderness. The cardiac symptoms require the general treatment described under anæmia and pericarditis. As the kidneys are healthy, the tendency to dropsical effusion may be obviated by stimulant diuretics.

CATALEPSIA.—CATALEPSY.

DEFINITION.—A sudden loss of consciousness with retention of the posture in which the patient happens to be at the moment of seizure.

SYMPTOMS.—This is an extremely rare disease, allied to those of the present section. Its essential features are, a fixing of the body in the position in which it happens to be at the moment of the seizure, or in which it may be placed during the fit, accompanied by total insensibility. The fit itself is rarely, if ever, fatal; but the intellectual faculties seem to suffer by its frequent repetition.

A lad of about fourteen years of age, a playmate of my own, was subject from childhood to this disease. He was often seized in the midst of his sports, without previous warning, and fixed like a statue in the attitude in which he happened to be at the moment. The fit rarely lasted more than one or two minutes, and when it ceased, he resumed his play with a slight air of surprise and embarrassment. He was found dead in a bath, into which he had fallen. (G.)

The *causes* of this disease are obscure, and little is known of its appropriate treatment. The general principles on which it should be con-

ducted are the same as those of epilepsy. Existing irritation must be removed, and any occasional determination of blood to the head relieved by appropriate remedies.

HYSTERIA.—HYSTERICUS.

DEFINITION.—A nervous disorder, usually attended with marked disturbance of the functions of digestion and respiration, and characterized by convulsive fits in which those functions are signally affected, and the controlling power of the will strangely impaired, without complete loss of consciousness.

SYMPTOMS.—The hysteric paroxysm, or fit, is generally preceded by an uneasy sense of fulness and weight at the pit of the stomach, with nausea, acidity, heartburn, and flatulence; followed by sighing, yawning, and stretching, dejection of spirits, shedding of tears, alternate chills and flushings, difficulty of breathing, and palpitation. There is often a sharp pain in the left side, about the flexure of the colon, with the sensation of a ball or globe rolling about (*globus hystericus*, and a peculiar gurgling and rumbling sound (*borborygma*), the ball seeming gradually to rise into the stomach, and thence to the throat. The fit having arrived at its height, the patient appears threatened with suffocation, the face is flushed, the nostrils are distended, the abdomen is protruded and tympanitic, the head is thrown forcibly back, and the limbs are strongly convulsed. The patient bursts into violent fits of laughter, sobbing, or screaming, utters incoherent expressions, and is in a state of temporary delirium; from which, however, she is readily roused so as to answer questions rationally. The spasms at length abate, a quantity of flatus is noisily expelled by the mouth, there is an abundant flow of limpid urine; and the patient recovers, recollecting imperfectly what has taken place. The fit is often followed by a severe pain in the head, and a sensation of soreness over the whole body.

Sometimes the hysteric fit consists in a sudden apparent loss of speech, sense, and motion, with a distinct recollection of what has been said and done. Sometimes, again, it is characterized by a sudden access of laborious breathing, swollen neck, flushed cheeks, and a closed and trembling eyelid; and the patient recovers, crying and sobbing.

CAUSES.—*Predisposing.* Female sex; celibacy; the age from puberty to the fifty-fifth year; studious and sedentary life; grief; anxiety; delicate health; plethora; the scrofulous diathesis. It is rare in the male sex, but may occur, under mingled debility, and mental excitement.—*Exciting.* Constipation; dyspepsia; flatulence; excessive evacuations; suppression of the menses or lochia; the plethoric and anæmic states; violent emotions; imitation or sympathy; tight lacing, or other impediments to the breathing. Spinal irritation.

DIAGNOSIS.—From *epilepsy*, by the retention of consciousness, and

of some control over the convulsive movements; by the marked affection of the respiratory muscles, as shown in sighing, sobbing, and yawning, cries, shrieks, and laughter; by the absence of any great distortion of the features; and by the peculiar trembling of the eyelid. (This latter sign is of great value, for whenever it is present, whether in men or women, whatever the name given to the disorder, whether hysteria, catalepsy, trance, or mesmeric slumber, it is a sign of safety, and strongly suggestive of cold affusion.—G.) From *mimosis inquieta*, by the marked character of the hysteric fit; but the true hysteric fit may be superadded to the group of symptoms which bears that name.

PROGNOSIS.—*Favorable*. In males affected with hysteria there is some ground to apprehend future mental unsoundness.

TREATMENT.—I. *During the fit*. In general nothing more is necessary than to dash cold water repeatedly into the face; and to address the patient in a loud and decided tone. The stays should be loosened, and ammonia applied to the nostrils. Assafoetida, æther, valerian, castor, etc., are of little use.

(The persevering use of cold water as a shock, not only serves to remove the existing attack, but often effects a cure, after anti-spasmodics have been used in vain. In a young man who had had repeated attacks of hysteria in a marked form, and had taken the strongest and most nauseous remedies for several weeks without effect, this simple means speedily effected a cure. I have seen a prompt and a permanent cure follow the disuse of tight lacing.—G.)

II. *During the intermissions*. The bowels must be kept free by gentle aperients; and the dyspeptic symptoms removed by appropriate remedies. If there be debility, stimulants or tonics, of which the metallic are the best, will be required; if plethora be present, a restricted diet. For anæmia, spinal tenderness, *mimosis inquieta*, and disorders of the uterine function, the remedies proper to those disorders. Change of scene, cheerful society, regular exercise, and the shower-bath may be prescribed with advantage.

Hysteria is common in perverse and irritable females, and in persons of both sexes possessed of little self-control. An education combining excessive mental, with defective physical exercise, predisposes to hysteria in young females.

Hysteria is rare in strong-minded women; and of four cases which have come under my notice in the other sex, three occurred in men remarkable for their want of self-control, two of whom became insane; and the third was a single attack occurring in a medical student on obtaining a prize for which he had long been anxiously striving. (G.)

In the foregoing description, the term hysteria has been restricted to a disorder accompanied by fits; but it is usual to give to this term a much more extended meaning, and to designate as hysterical all the more obscure diseases of females. This indiscriminate use of the term

often leads to unsatisfactory views of the real condition with which we have to do. There are affections, however, which may, without impropriety, be designated as hysterical; such as aphonia, dysphagia, dry noisy cough, dyspnœa, hiccough, flatulence, paralysis, syncope, brow-ague, irritable breast, besides a large class of anomalous nervous affections, which often closely simulate diseases of a more formidable character. The mind of hysterical females is often in a state bordering on insanity; an intense desire for sympathy being the mainspring which sets the strange machinery in motion. The mind, in fact, is in the same state as the body; and as the convulsive movements are partly due to an excited state of the reflex function, and partly to an absence of self-control, so the extraordinary mental condition is the effect of the extension to the brain of the same condition of the nerves accompanied by the same absence of self-control.

We shall often be greatly assisted in determining the true nature of these anomalous diseases by observing one or other of the following circumstances:—1. That the patient, seeming to labor under a disease which is usually accompanied by emaciation and a decided appearance of ill-health, loses neither flesh nor color; so that if she has long been confined to bed with paralysis, her limbs remain plump and firm; if she has not been able to swallow for weeks, or is troubled with incessant vomiting, she seems to have taken at least three meals a day; if she has been a martyr to excruciating pain, her face is as free from wrinkles as if she had never had a care or a pang.—2. That though, in some anomalous cases, the patient seems to be altogether insensible, the pulse beats as usual, the face has its natural color, and while all other parts are motionless, the eyelids vibrate rapidly, and especially when any effort is made to rouse her.—3. That a great portion of these affections are associated more or less with disorders of the respiratory function.—4. That the patient is, or has been, subject to flatulence, borborygma, globus hystericus, or well-marked hysterical fits. In the treatment of these disorders, the medical man must combine great firmness with kindness, and not spare cold water. Cold affusion is the only remedy which can be relied on. It is worth a whole pharmacopœia of anti-spasmodics. (G.)

EPILEPSIA.—EPILEPSY.

SYNONYM.—Falling sickness.

DEFINITION.—Fits recurring at regular intervals, with sudden loss of sense and power of motion, frequently preceded by a shriek, attended by general convulsions, and usually followed by coma.

SYMPTOMS.—The patient is seized suddenly, or after a short warning, with loss of consciousness and of power, so that, if he be standing, he suddenly falls, or is thrown to the ground. The fit which is frequently

preceded by a loud piercing cry, consists in strong convulsive motions of the limbs and trunk, and various distortions of the countenance. The brows are knit; the eyes fixed and staring, or turned up beneath the lids; the pupils are dilated and do not contract when exposed to light. The hands are firmly clenched, and the arms are tossed about. The breathing is gasping and difficult, or altogether suspended; the heart beats violently; the vessels of the head become turgid, and the face is livid: foam, often bloody, issues from the mouth; the jaws are contracted with great force, so that the under lip, or the tongue, if protruded, is apt to be severely injured. The fæces, urine, and semen are sometimes expelled, and priapism is not uncommon. After the convulsions have continued for a few minutes, they cease, leaving the patient motionless, but in a state of insensibility, and apparently in a profound sleep. He gradually recovers, and if left to himself, will generally sleep for some hours. Sometimes there is a succession of fits, with intervals of torpor, lasting for several hours. Occasionally the epileptic fit is followed by maniacal paroxysms of great violence; sometimes by incoherence.

There is a form of epilepsy, of frequent occurrence, called by the French *petit mal* in contra-distinction to the foregoing which is designated the *grand mal*. It consists in sudden and transient giddiness with loss of consciousness, confusion or incoherence of mind and unsteadiness of gait, accompanied in some instances by erections of the penis, in others by slight convulsions. Such slight fits are often followed by great confusion of intellect, and sometimes by maniacal incoherence. (In one case of epilepsy belonging to this class every fit of epilepsy was followed by an unconscious exposure of the person.—G.)

Premonitory symptoms.—In some cases pain in the head; lassitude; bright circles of colors before the eyes, sudden flashes of light, in rare instances spectral illusions; or there is a loud noise in the ears; or an offensive smell; or a bitter taste; unquiet sleep; unusual dread; palpitation of the heart; coldness of the joints; fluttering at the epigastrium; vomiting; a sensation of cold, or a pain arising in some part of the extremities, and gradually creeping upwards until it reaches the head (the *aura epileptica*), when the patient is instantly deprived of sense, and falls as above described. (In a case that came under my notice, every fit was preceded by the utterance of the same incoherent sentence, to which the patient attached no meaning.—G.) But in the majority of cases, the fits are not preceded by any warning. They occur at variable intervals; sometimes in the day, sometimes at night, during sleep; and there are often several fits in the twenty-four hours; in other cases, there are intervals of months or years.

CAUSES.—*Predisposing.* Drunkenness, epilepsy or insanity in parents or ancestors; scrofula; malformation of the head; debility in nervous persons; dissipation, intemperance, self-abuse, and excess or suppression of discharges.—*Exciting.* Sudden fright; fits of passion, or vehement

emotions of the mind; sexual intercourse; masturbation; plethora of the vessels of the head; anæmia of the brain and spinal cord, such as occurs in cases of excessive uterine hemorrhage (epileptic convulsions terminate the lives of animals bled to death); reflex irritation from worms; dentition; acute pain; suppression of urine or bile; tumors compressing the brain, or any part of the nervous system; parasites in the brain (the *cænurus cerebri* is the common cause of convulsions in sheep). Drink, and syphilis are two of the commonest causes of self-induced epilepsy. Epilepsy sometimes occurs as a symptom of poisoning, especially by arsenic and lead.

MORBID ANATOMY.—In most cases there is congestion of the vessels of the brain. In the remainder, such causes of irritation as thickening of the membranes, spiculæ of bone, internal nodes, tumors or the cystic form of *tænia*.

DIAGNOSIS.—From *hysteria*, by the total suspension of consciousness, the solitary cry which precedes, and the deep sleep which succeeds, the fit. From *feigned* epilepsy, by the total insensibility, extending even to the retina. From *apoplexy*, by the transient nature of the fit, the absence of the stertorous breathing, and, in most cases, by the absence of paralysis, and the completeness and universality of the convulsions. From *tetanus*, by the insensibility, and the clonic character of the convulsion.

PROGNOSIS.—*Favorable.* When sympathetic, occurring before the age of puberty, and arising from exciting causes easy of removal; or originating in functional derangement of the uterine system.—*Unfavorable.* When the disease comes on after puberty; hereditary predisposition; scrofulous diathesis; long previous continuance of the malady and frequent occurrence of the fits; misshapen skull; the epileptic physiognomy; impairment of memory and judgment.

TREATMENT.—I. Immediately before the fit. II. During the fit. III. During the interval.

REMEDIES.—*Immediately before the fit.* Pressure on the carotids; a ligature between the parts from which the *aura* first proceeds and the brain, as round the thumb or little finger when it begins there; a strong mental effort; violent exercise; irritation of the nostrils, with snuff, or strong smelling-salts; dashing cold water over the face and head; an emetic, a full dose of opium or laudanum.

During the fit.—The patient should be placed, if possible, on a soft bed, the neckcloth and shirt-collar loosened, and the tongue protected by a piece of India rubber, soft wood, or a pad of linen placed between the teeth. When the fits occur during sleep, and the tongue is liable to be bitten, the patient should wear a smooth rounded guard, fitting closely to the teeth. After the fit, he should be allowed to sleep, and if much exhausted, may take some slight stimulant.

In the interval.—The recurrence of the fit is sometimes prevented—

1. By removing all causes of irritation, as constipation, intestinal worms, the irritation of teething, etc.

2. By avoiding the exciting causes, such as over-distention of the vessels of the head, however induced, fits of passion, or other violent emotions of the mind; intemperance; dissipation, or other bad habits.

3. If the patient be plethoric, by occasional bleeding, abstemious diet, and saline aperients. Issues or setons in the neck or arm, or antimonial ointment rubbed into the spine, sometimes give relief.

4. If the patient be weak and irritable, tonics: as quinine, sulphate, oxide, and valerianate of zinc, sulphate and peroxide of iron, sulphate or ammonio-sulphate of copper, nitrate of silver (an objectionable remedy, as causing permanent discoloration of the skin), arsenic. He should rise early, take regular exercise, nourishing but not stimulating diet, and use cold bathing, or the shower-bath.

In females, attention should be paid to the state of the uterine function, both in young persons and at the change of life, according to the rules given elsewhere for the treatment of disorders of this function.

5. Bromide of potassium in doses of from 5 to 10 grains, increased to 30 or 40 grains, is an excellent remedy.

6. If there be a syphilitic taint, mercury, or iodide of potassium.

In cases preceded by the aura, division of the nerve running from the part where it begins has been recommended, and even amputation; but these operations are of very doubtful efficacy.

DISORDERS OF THE MIND.

MANIA	Furious Madness.
MELANCHOLIA	Melancholy Madness.
HYPOCHONDRIASIS	Vapors.—Low spirits.
DELIRIUM TREMENS	Drunkard's Delirium.

MANIA.—FURIOUS MADNESS.

SYMPTOMS.—This disease sometimes comes on suddenly, but more frequently slowly and almost imperceptibly. For some months, or even years, the thoughts, habits, tastes, temper, and affections become more and more the reverse of those that are natural to the patient. He suffers from a distressing confusion of ideas, a failure of memory, depression of spirits, a loss of interest in his ordinary pursuits, with extreme irritability of temper, restlessness, and wakefulness; and he has a miserable consciousness of loss of mental power and change of character. The general health suffers; there is pain in the head and giddiness; the appetite fails, the sleep is disturbed, the bowels are confined or irregular, or affected with diarrhoea; the tongue is furred; the pulse frequent and quick; the

patient grows thin, and the features alter. But before the disease shows itself in its marked form, the bodily health often improves, and the painful consciousness of unsoundness disappears.

After these symptoms have lasted for a variable period, without attracting much attention, some accident, injury to the head, mental shock, or unusual excitement of the mind, or some mere trivial circumstance, brings on decided mania.

The symptoms of mania, whether they set in suddenly or come on gradually, are the following:—anxiety, uneasiness, restlessness, sleeplessness, alternate excitement and depression, or continued agitation and violent muscular efforts, rapid and incoherent discourse, fits of loud laughter, or shoutings, grinding of the teeth, spectral illusions, mental delusions, and unfounded antipathy to certain persons, particularly to near relations or intimate friends. There is a peculiar wildness and fierceness of countenance, the pupil is dilated, the eyelids widely open, the eyes glistening and unsteady, the features strongly marked, and the countenance flushed. The patient will sometimes complain of severe pains in the head, giddiness, loud noises in the ears, and bright spots before the eyes. The sensations are generally more obtuse than usual, or they are disregarded, so that the patient will bear the most intense cold or heat, prolonged abstinence from food or drink, and long-continued want of sleep. The bowels are usually costive, and require strong aperients; the taste is often depraved, and the appetite variable; the tongue is dry and furred; the pulse full and quick; the habits are careless and often filthy. The disease is often the result of chronic disease of the brain, and is associated with epilepsy and paralysis.

Some maniacs have lucid intervals, which occur with regularity; others are subject to paroxysms of very irregular occurrence. The maniac can also, under certain circumstances, exercise considerable self-restraint, conceal his delusions or designs, and carry out his plans with the cunning and contrivance of a sane man.

Attacks of mania sometimes seem to suspend other diseases, such as gout and consumption; they may also be attended by a remarkable improvement in the general health; and they are consistent with the attainment of old age. Relapses are common. Mania often supervenes on less acute disorders of the mind, and it generally passes into dementia, often complicated with paralysis.

MORBID ANATOMY.—Thickening and opacity of the arachnoid; effusion of serum beneath the membranes or in the ventricles; increased or diminished vascularity; atrophy or increased density of the substance of the brain; softening of the gray matter, especially in cases accompanied by paralysis. But there is no morbid appearance proper to insanity.

CAUSES.—*Predisposing.* Hereditary tendency; the adult age (Heberden never saw it earlier than the sixteenth year).—*Exciting.* Violent emotions; intense application to study or business; immoderate

indulgence of the passions; violent exercise; frequent intoxication; parturition, lactation, and change of life; blows on the head; acute febrile disorders; disease of the brain; and antecedent attacks of epilepsy.

DIAGNOSIS.—From *encephalitis*, by the absence of febrile symptoms. From *delirium tremens*, by the more violent excitement, the more complete incoherence, the absence of tremor, and the history of the case.

PROGNOSIS.—*Favorable.* Following some other disease, or arising from some temporary cause, such as an occasional excitement of the mind or a single debauch; the attacks being slight and infrequent; youth; hæmorrhage; diarrhœa.—*Unfavorable.* Coming on after the middle period of life, or having been of long continuance; complication with epilepsy or paralysis.

TREATMENT.—In the early stage, the *medical* treatment must be determined entirely by the condition of the bodily functions. Symptoms of determination of blood to the head must be met by remedies suitable to that state. Constipation will require the use of aperients. When the secretions are disordered, the patient must be put under a course of alteratives; suppressed discharges must, if possible, be restored. If there be anæmia, or debility arising from other causes, tonic remedies are indicated, and if the habits of the patient be in any respect unfavorable to health, a change must be insisted on. The habitual use of the shower-bath, change of air, a nutritious and unstimulating diet, regular hours for meals and rest, and an abstinence from business, with change of scene, and cheerful society, should be particularly enforced. The *moral* treatment will consist in removing as much as possible all causes of excitement; all unnecessary opposition to the patient's plans and wishes; with great forbearance on the part of relations and attendants.

When the disease is fully developed.—If there be decided symptoms of determination of blood to the head, bleeding, cupping, leeching, cold to the head, brisk purgatives, and low diet must be prescribed. When the patient is extremely violent and sleepless, conium juice or opium should be given in large doses. We may give from ζ i. to ζ ii. of the former every six hours, or five grains of the latter, and increase the dose to ten, fifteen, or even twenty grains. This treatment seems to be peculiarly applicable to cases brought on by exhaustion, whether from loss of blood, starvation, intemperance, or dissipation, and in puerperal mania. If the face be pale, or the attack of mania have been preceded by loss of blood, debilitating discharges, or exhausting diseases, tonics or stimulants, according to the degree of the debility, in combination with opiates, must be resorted to. In all cases allied to hysteria, the shock of the cold affusion, or the shower-bath, is highly advantageous.

The moral treatment.—In recent cases it is necessary to prevent the patient from offering violence to himself or others by the strait waistcoat, or the coercion of powerful attendants. The fury of madmen and the viciousness of brutes can be tamed by similar means. While treat-

ing him kindly, the attendant must make the patient feel that he is both wiser and stronger. In chronic cases, and in lunatic asylums, personal restraint can often be foregone, and constant watchfulness, gentle and conciliating treatment, and occasional seclusion may be substituted. Much depends upon gaining the confidence of the maniac, and keeping out of sight all irritating means of restraint.

The patient should be engaged, if possible, in some exercise or pursuit that will interest the mind, and thus divert it from one invariable train of thought; and he should be removed from familiar objects, and out of reach of things and persons associated with the origin of his disease. When there is a tendency to suicide, the most constant vigilance is required.

Mania is only one of many mental disorders, but it is the one which the practitioner is most likely to be called upon to treat. The other forms of mental unsoundness, not treated of in the present chapter (*viz.*, idiocy, imbecility, and dementia), rarely require more than skilled attendance and moral treatment.

For a more minute account of many of the phenomena of unsound mind, see Part I., p. 99-106.

MELANCHOLIA.—MELANCHOLY MADNESS.

SYMPTOMS.—This disease is characterized by dejection of spirits, seclusion, timidity, fickleness, and great watchfulness, and is generally accompanied by disorders of the digestive organs, with flatulence and costiveness. The mind pursues one object or train of thought, which usually bears a near relation to the patient himself, or to his affairs, which he views with great and unfounded apprehension, and extreme depression. This painful state of mind is often attended by a strong propensity to suicide. In one form of the disease the patient refers some bodily sensation to imaginary and impossible causes, as living animals, or even persons, in the stomach or bowels.

CAUSES.—*Predisposing.* Hereditary tendency to insanity.—*Exciting.* Chronic diseases of the liver and organs of digestion; suppressed evacuations; distress of mind; sudden mental shocks; anxiety; excessive evacuations; intemperance.

DIAGNOSIS.—From mere depression of spirits by its exaggerated and persistent character, and the existence of delusions. The term melancholia is sometimes improperly used for monomania.

PROGNOSIS.—*Favorable.* The absence of hereditary tendency; the previous short duration of the disease; the reappearance of habitual evacuations; sound sleep.—*Unfavorable.* Hereditary predisposition; the chronic character of the disease, or its association with epilepsy.

TREATMENT.—The *medical* treatment consists in regulating the

functions of the stomach and bowels by aperients and alteratives, and in the use of remedies adapted to the state of the patient's constitution. The shower-bath may be prescribed with advantage.

The *moral* treatment consists in changing the scene, amusing the mind, and diverting attention from the existing train of thought. Travelling, rural sports, cheerful society, and music may be recommended, according to the tastes and previous habits of the patient, and the experience of friends or attendants. If he betray any tendency to suicide, he must be constantly watched. If he suppose the stomach or bowels to contain some living animal, a pretended operation for its extraction may effect a cure.

HYPOCHONDRIASIS.—VAPORS.—LOW SPIRITS.

SYMPTOMS.—Dyspepsia, with dull pain in the hypochondria; languor, listlessness, irresolution, seriousness, sadness, and timidity. The patient pays close attention to his health, exaggerates his symptoms, and takes desponding views of his case.

CAUSES.—*Predisposing.* The melancholic temperament.—*Exciting.* Dyspepsia; painful mental impressions; distressing events.

DIAGNOSIS.—From *melancholia*, by the more constant dyspeptic symptoms, and the absence of well-marked delusions. From *dyspepsia*, by the exaggerated importance attached to existing symptoms.

TREATMENT.—That of dyspepsia. The patient should be kept, as much as possible, from thinking of his complaints. Change of air and scene. Active remedies should be avoided.

DELIRIUM TREMENS.—DRUNKARD'S DELIRIUM.

SYNONYM.—Mania a potu. Alcoholism.

Drunkenness is the most common, but not the only, cause.

SYMPTOMS.—Sleeplessness; restlessness; strange illusions of sight and hearing; and delirium, during which the patient recognizes those about him, answers questions rationally, and does hurriedly what he is told to do. He talks incessantly, is very anxious to be doing something; will be found busily looking, in unlikely places, for some object on which his mind is intent; or he will transact his ordinary business in a dreamy way. He is timid and suspicious, thinks he is surrounded with enemies, or in a strange place, from which he is constantly trying to escape; or that some great evil is impending, or has actually befallen him. He is rarely violent, but may expose himself to danger in trying to escape. Trembling of the lips, tongue, hands and limbs, is generally present, and

particularly in speaking, or making any effort. There is profuse perspiration, a moist and slightly furred tongue, and a small, quick, frequent, compressible pulse. The face, in most cases, is pale, and the manner composed and rational, even when describing symptoms and imaginary events likely to excite and interest persons in their right mind. But symptoms of phrenitis, indicated by hot head and flushed face, may accompany the delirium. In fatal cases, the patient falls into the typhous state, the tremor becomes subsultus tendinum, and the evacuations pass involuntarily; or the mucous râle ushers in death by apnœa. The disease is apt to recur.

The illusions are peculiar, and generally relate to living things. The patient will listen to the arm of a chair, believing it a serpent, or scratch it with his nail, alleging it to be the hiding-place of a scorpion; or he confounds inanimate with living objects. Thus a groom will lift the leg of a table as if it were that of a horse, and harness chairs with string, etc.

MORBID ANATOMY.—In traumatic delirium no morbid appearances. In death after repeated attacks of mania a potu, hardening of the brain, and a little fluid in the ventricles and subarachnoid spaces. In some cases fulness of the vessels and serous effusion. Alcohol has been detected in the serum of the ventricles.

CAUSES.—*Predisposing.* The abuse of alcoholic liquors, opium, or other narcotic drugs. Exhaustion by intense study or by anxiety. Hot weather.—*Exciting.* An occasional debauch; continued intemperance; sudden abstinence from an accustomed stimulant; loss of blood; exhausting maladies; shock, physical or mental; severe wounds (delirium traumaticum).

DIAGNOSIS.—From *meningitis*, by the absence of headache, and usually of fever; trembling hands; peculiar illusions; the timid and suspicious manner; and generally by the absence of febrile and inflammatory symptoms. The distinction between *meningitis* and *delirium tremens* coming on after a single debauch, or short indulgence in habits of intoxication, must be drawn from the patient's history, and of that of the attack.

PROGNOSIS.—*Favorable.* In proportion to the physical strength of the patient.—*Unfavorable.* If the pulse be small, weak, and intermittent, and opium fail to produce sleep.

TREATMENT.—*Indications.* I. To procure sleep. II. To sustain the strength. III. To reduce inflammation when present.

I. This indication is fulfilled by opium. Two or three grains of solid opium, or from half a drachm to a drachm of laudanum, may be given, followed after one, two, or three hours by a grain of opium, or twenty drops of laudanum, till sleep is procured. The opium may be combined with ammonia, wine, or the patient's usual stimulant. Subcutaneous injections of morphia may be substituted for opium.

II. If the pulse be very feeble, ammonia and bark, beef-tea, brandy and eggs, must be freely administered. Large doses of digitalis have

been recommended, but the remedy is of doubtful efficacy, and must be used with caution.

III. Inflammatory symptoms are best treated by cold to the head. The bowels should be kept moderately open.

The patient must be watched, and the windows well secured by bars or shutters ; and one or two strong persons should be in attendance. If the patient be violent, the strait waistcoat must be used.

CHAPTER II.

DISEASES OF THE CIRCULATING SYSTEM.

1. Of the Heart.
2. Of the Arteries.
3. Of the Veins.

DISEASES OF THE HEART.

1. Functional or Nervous Affections.
2. Structural or Organic Diseases.

1. FUNCTIONAL OR NERVOUS AFFECTIONS.

PALPITATIO	Palpitation.
ANGINA PECTORIS	Spasm of the heart.
SYNCOPE	Fainting.

PALPITATIO.—PALPITATION.

BY PALPITATION we mean frequent, strong, and tumultuous movements of the heart, without appreciable organic lesion. It is, however, a common symptom of organic diseases of the heart. When existing in an extreme degree, the heart's beats are both heard and felt by the patient, especially when lying on the left side; and they may even be seen by the bystander. They are sometimes accompanied by a slight and transient *bruit de soufflet*, which ceases when the heart becomes quiet. The palpitation is attended by a painful sensation of sinking, referred to the region of the heart or pit of the stomach, and spoken as "a sinking of the heart." In some cases there is a tendency to syncope. Fits of palpitation often occur on first waking in the morning.

CAUSES.—*Predisposing.* The nervous temperament; the female sex.—*Exciting.* Strong emotions—joy, grief, anger, sadness, fear, anxiety. Violent exercise. Debility following chronic and acute diseases; excessive loss of blood; inordinate natural discharges; abuse of purgatives; dyspepsia, accompanied by flatulency, want of nourishment, intemperance, the excessive use of tobacco, want of sleep, anxiety and distress, intense study; dissipation and debauchery, excessive sexual intercourse, onanism (hence the frequency of palpitation among prisoners). In females, change of life.

Palpitation frequently accompanies valvular diseases of the heart, and is a prominent symptom in anæmia, hysteria, spinal irritation,

mimosis inquieta, and leucorrhœa, in females ; and plethora, dyspepsia, bronchitis, emphysema, and pulmonary consumption in both sexes.

Long before any other symptom of pulmonary consumption has made its appearance, the patient will often complain of distressing palpitation; and this is so common, that palpitation, not otherwise accounted for, should lead to an examination of the lungs.

Chlorotic girls are often supposed to labor under organic disease of the heart, when there is only functional disturbance. They complain of palpitations, difficulty of breathing, and pain in the left side, and are sometimes leeches, cupped, and blistered when they require an opposite treatment. In females suffering from spinal irritation, the heart is often very irritable, and the pulse may exceed 160 in the minute.

DIAGNOSIS.—The absence of the physical signs of organic disease ; the peculiarly distinct character of the sounds of the heart; the absence of inequality and irregularity of the pulse (except in rare cases of dyspepsia); the intervals of entire freedom, the great frequency of the pulse when the finger is first placed upon it, and the gradual diminution, which follows as the patient's apprehension disappears.

TREATMENT.—Idiopathic palpitation in plethoric individuals may require the abstraction of blood from the arm, or by leeching or cupping to the region of the heart, followed by saline aperients, low diet, and rest. In most cases the medicinal and hygienic treatment will be that appropriate to *anæmia*, *chlorosis*, or *mimosis inquieta*. But in obstructive pulmonary diseases, and in valvular diseases of the heart itself, the palpitation, which was at first but a symptom of these diseases, may subsequently become a cause of their aggravation, and our first endeavor must be to subdue the excitement of the heart. When its action is very tumultuous and irregular, much benefit may be obtained from digitalis or hydrocyanic acid. An anodyne plaster of belladonna or opium may at the same time be applied to the præcordia.

In persons subject to nervous palpitations, it is of the first importance to procure tranquillity of mind; and as a fear of organic disease of the heart is often present, the assurance of the medical man that the heart is free from structural disease will go far to effect a cure.

Irregular and intermittent pulsations of the heart often arise from the causes which produce nervous palpitations, especially from dyspepsia attended with flatulence, and are relieved by the same remedies. But they may depend on organic disease of the heart.

The pulse at the wrist and heart may be irregular and intermittent during health, become regular during acute disease, and return to its former condition during convalescence or recovery.

Pulsation in the epigastrium is usually produced by flatulent distention of the stomach, and is removed by carminative aperients. (Form. 243, 347.)

ANGINA PECTORIS.—BREAST PANG.

SYNONYM.—Syncope anginosa.

DEFINITION.—Sudden and acute pain in the chest, referred to the sternum, accompanied by intense anxiety and fear of death.

SYMPTOMS.—This disease generally occurs in persons having every appearance of good health. It consists of fits, or paroxysms, which come on during exercise, especially when walking up an ascent against the wind, or after a full meal. The attack is announced by a sudden and violent pain across the chest, extending down the left arm, or down both arms as far as the insertion of the deltoid muscles, and in some cases, to the wrists, or fingers, accompanied with a sense of stricture so acute as to threaten immediate death. The patient is instantly obliged to stand still, and the moment he does so all the symptoms vanish. After repeated attacks, the fits, excited by slighter causes, are more violent and last longer. They often occur on the patient's waking from his first sleep, and he is, at times, incapable of lying down. At length, a fit more violent than usual puts an end to his existence, or death takes place suddenly without pain or other warning.

MORBID APPEARANCES.—Defective supply of blood to the muscular tissue of the heart, from absence of one coronary artery, or ossification of both; ossification of the valves; morbid accumulation of fat; fatty atrophy of the heart. In a few cases the disease has been caused by the pressure of tumors in the chest; in a few others there has been no morbid appearance, and death has been attributed to spasm of the heart.

CAUSES.—*Predisposing*.—The male sex; age above 50; it is rare in women. (Of nearly a hundred cases, three only occurred in women, and one in a boy twelve years old. The rest were men, near or past 50 years of age.—Heberden.)—*Exciting*. Violent exercise, strong mental emotion, and any kind of excess; flatulence; organic diseases.

DIAGNOSIS.—The suddenness of the attack, the acute pain, and the intense anxiety distinguish it from simple palpitation.

PROGNOSIS.—The probable termination is in sudden death. This usually occurs without pain, the person being found in bed as if quietly asleep. The fatal event is often postponed to an advanced age. In a small number of cases the disease is transient.

TREATMENT.—*Indications*. I. In the paroxysms, to revive the failing action of the heart. II. In the interval, to regulate and invigorate its movements.

The first indication is fulfilled by the immediate administration of stimulants and antispasmodics, such as æther, ammonia, brandy and water, and strong coffee. The patient should always have at hand some diffusible stimulus, or combination of this with an opiate. (Form. 105.)

To meet the second indication the patient should be directed to lead a quiet life, to put away all anxiety and excitement, and to avoid hurry,

strong muscular exertions, and walking up hill. The diet should be light and nutritious; food should be taken often, and in small quantities. Whenever a feeling of weariness comes on, a little wine or brandy should be taken. Attention must be paid to the general health, and especially to the pulmonary circulation.

A sudden sharp pain in the region of the heart sometimes attacks nervous and dyspeptic persons. It has been attributed in some cases, and with apparent reason, to excessive indulgence in strong tea. The pain is not attended with the extreme anxiety of angina pectoris, and does not extend beyond the region of the heart. The treatment of this affection must depend on the state of the patient's health, and the ascertained cause of the individual paroxysms. Benefit is often derived from the application of a belladonna plaster.

Spasm of the heart is described by Laennec, though disallowed by Bouillaud. But there is no reason why the heart should not suffer from spasm as well as other muscular organs.

The muscular structure of the heart would also seem to be the occasional seat of rheumatism; the symptoms being constant dull pain, increased at intervals, and palpitation without any abnormal sound.

SYNCOPE.—FAINTING.

SYMPTOMS.—A person about to faint experiences an indescribable distress. The sight fails, and objects appear to swim before the eye; there is a sense of singing or buzzing in the ears; the lips and countenance become pale; a cold perspiration bedews the whole body; the pulse and breathing are almost imperceptible, and the patient, if unsupported, falls senseless to the ground. In some cases, not the smallest sign of life can be perceived, the face has a death-like pallor, the extremities are cold, the eyes closed, and the limbs flaccid. Recovery is announced by deep, prolonged sighs, is frequently attended with vomiting or purging, or it may pass into epileptic convulsions.

In milder cases the loss of sense is incomplete, the pulse is diminished in force and volume, the patient merely becomes pale and sick, and drops of sweat appear upon the brow.

DIAGNOSIS.—Syncope does not usually continue longer than a few seconds, but in some cases it persists for several minutes. In hysterical syncope the pulse beats as usual, the skin is warm, there is no pallor of countenance, and the eyelids vibrate.

CAUSES.—*Predisposing.* A nervous and delicate constitution; weakness; profuse evacuations, especially of blood; functional or organic diseases of the heart. *Exciting.*—Strong emotion; severe pain; loss of blood.

TREATMENT.—Nervous syncope is rarely dangerous. The recumbent posture, a draft of fresh air, cold water sprinkled on the face and neck,

and ammonia to the nostrils, will soon restore animation. Such articles of dress as impede respiration should be immediately loosened. Hysterical syncope must be treated by cold affusion.

When fainting fits are the result of diseases of the heart, the same remedies must be employed, and ammonia and hot brandy and water administered internally.

Since chloroform causes death chiefly by paralyzing the heart's action, a few words on its administration, and the treatment of the state of profound syncope sometimes induced by it, will be appropriate in this place.

Precautions to be used in the administration of Chloroform.—1. The chest of the patient should be carefully examined, and if there be valvular defect of the heart, or intermittent action from debility or atrophy, or if there be any obstruction to the free action of the lungs, from tumors, interstitial deposits, and *especially from emphysema*, chloroform must not be administered.

2. The inhaler should be so constructed as to secure a rate of evaporation as nearly equal as possible; and to guard against the air in the reservoir becoming charged with more than six per cent of chloroform vapor. The instrument contrived by Dr. Sansom, and made by Mr. Matthews, provides these essential safeguards.

3. The receptacle for the chloroform should be on a lower level than the patient's mouth, and should be carefully kept upright, otherwise the unmixed vapor of the chloroform, which is four times heavier than air, will flow undiluted into the lungs of the patient.

4. The finger should remain on the pulse, and the eyes be steadily directed to the chest and face during the whole of the process. If the pulse intermit, or fall below sixty; if the breathing become abnormally slow, or feeble and shallow, or the countenance livid, the inhalation must be promptly stopped.

The state of insensibility which it is desired to induce should have the following characters. Pulse and breathing tranquil, and the expression of the countenance that of ordinary sleep; but if there have been much noisy struggling in the first stage, it may appear a little congested. The eyelids closed and insensible, the eyeball fixed, and the pupil contracted, but respondent to the stimulus of light. The skin insensible and the limbs flaccid.

Chloroform kills by paralyzing the heart, and death usually takes place with great rapidity, the breathing and pulse rapidly becoming slower, and, in a few seconds, imperceptible; the pupils dilated and insensible to light; the face pale and sometimes livid.

The *post-mortem appearances*, due to the effect of chloroform, are congestion of the lungs, an empty and flaccid condition of the heart, and a fluid state of the blood.

The means of resuscitation should always be at hand, to be promptly

employed if the symptoms just mentioned appear. They are strong ammonia, hot and cold water, artificial respiration, electricity. While ammonia is being applied to the nostrils and mouth, and a large sponge saturated with almost boiling water to the region of the heart, cold water should be dashed in the face and artificial respiration employed, the tongue being pulled forcibly forwards. If these means fail, electricity (by means of the magneto-electric apparatus) may be applied to both sides of the body simultaneously—one electrode being placed on the neck, the other on the chest, so as to direct the current from above downwards.

STRUCTURAL DISEASES OF THE HEART AND PERICARDIUM.

- PERICARDITIS . . . Inflammation of the Pericardium.
 ENDOCARDITIS . . . Inflammation of the Endocardium.
 CARDITIS Inflammation of the Substance of the Heart.
 ATROPHY Fatty Degeneration of the Heart.
 DISEASES OF THE VALVES of the Heart.
 HYPERTROPHY . . . Enlargement of the Heart.
 DILATATION . . . Of the heart.
 CYANOSIS Blue Disease.
 ENTOZOIC DISEASE of the Heart.
-

PERICARDITIS—INFLAMMATION OF THE PERICARDIUM.

VARIETIES.—1. Acute. 2. Chronic.

1. ACUTE PERICARDITIS.

Idiopathic pericarditis is very rare. The disease is commonly an accompaniment of acute rheumatism or of pleurisy.

SYMPTOMS.—After rigors, which are sometimes extremely severe, pain, more or less acute, under the left nipple and towards the lower end of the sternum, occupying a part or the whole of the præcordial region, radiating towards the left axilla and arm, and sometimes extending down the left arm to the elbow or wrist. The pain may be lancinating, or dull and obscure; or there may be merely a feeling of oppression. When pain is present, it is increased, when absent, often produced, by deep pressure in the intercostal spaces over the region of the heart, by upward pressure against the diaphragm, or by an attempt to lie on either side. There is also violent and often irregular palpitation.

In addition to the cardiac symptoms, there is more or less fever; a frequent, full, hard, regular, and *jarring* pulse, or a small, unequal, irregular, and very rapid one; dyspnoea, or respiration interrupted by sighs, sobs, or hiccough; an insupportable sense of oppression, restlessness, jactitation, and an urgent want of fresh-air; the skin may be bathed in sweat, or very dry and hot; the countenance is pale, contracted, and

expressive of extreme anxiety. Sometimes there are attacks of partial convulsions, or a slight and momentary delirium, and if the patient sleep he awakes with fearful dreams; in other cases there is complete insomnia. The anxiety and agony are sometimes so insupportable that the slightest motion occasions an apprehension of sudden death. When the disease proves fatal, the breathing becomes more and more laborious, the countenance livid, the eye glassy, the skin covered with a clammy sweat.

TERMINATIONS.—1. In complete recovery. 2. In chronic pericarditis. 3. In adhesion of the pericardium. 4. In death.

MORBID ANATOMY.—Effusion of serum, with shreds of coagulable lymph, or with pus, sometimes tinged with blood; rough deposits of lymph on the membrane; slight soft adhesions between the two surfaces. In many cases, endocarditis, more or less extensive.

DIAGNOSIS.—The disease is apt to be confounded with pleuritis, pneumonia, or even with simple fever. When the *physical signs* are well marked the diagnosis is easy.

Auscultation.—Within a few hours, or one or two days of the commencement of the disease, a superficial *to-and-fro* sound (*bruit de frottement*), caused by the rubbing of the inflamed surfaces of the pericardium, corresponding to the two sounds of the heart, and resembling the sound caused by rubbing the hands backwards and forwards against each other. When the lymph is more consistent, the sound resembles the creaking of new leather (*bruit de cuir*), or in still more marked cases, that of a file or a rasp (*bruit de scie, bruit de râpe*). As the secretion into the sac of the pericardium increases, or if the opposite surfaces become adherent, the *to-and-fro* sound disappears. The sound is first heard a little to the left of the mesial line, and about the centre of the sternum, whence it gradually extends over the whole præcordial space. It is often accompanied by a bellows sound synchronous with the systole of the heart, and this, which is *endocardial*, often remains when the *to-and-fro* sound has ceased. Sometimes it is very difficult to determine whether the sound be *endo-* or *exocardial*. The *exocardial* sound may be distinguished—1. By its nearness to the surface. 2. By its independence of the sounds of the heart. 3. By its limitation to the region of the heart—*endocardial* sounds are frequently prolonged over the great vessels. 4. By its occasional disappearance and change of character. *Percussion* detects præcordial dulness, co-extensive with the effusion. When there is much liquid effusion, the sounds of the heart are at first muffled and in proportion as it increases, they become less and less distinct, till, in extreme cases, they are almost inaudible.

PROGNOSIS.—Complete recovery only occurs in those cases in which the effusion is fluid. Solid effusions generally lead to some roughening of the pericardium, or adhesion of the opposed surfaces.

CAUSES.—*Predisposing*. Hereditary tendency to rheumatic and

gouty affections; male sex; age from 10 to 30.—*Exciting.* Cold, and, in most cases, the extension of acute articular rheumatism; adjacent inflammations of the pleura or lungs; renal disease; pyæmia.

TREATMENT.—*Indications.* I. To subdue the existing inflammation. II. To promote the absorption of effused matters.

I. The first indication is fulfilled by general or local bleeding, according to the strength and state of the patient. If the disease come on suddenly in a vigorous plethoric person, blood may be taken from the arm, so as to make a decided impression on the pulse; and this may be followed by cupping, or leeches over the heart. But if the disease supervene, as it generally does, in the course of an attack of acute rheumatism, or in one whose strength is already reduced, topical bleeding by cupping or leeches will suffice. In no case should depleting measures be carried to excess. They may be assisted by purgatives, rest, and the antiphlogistic regimen; and when the depletion has been carried to the proper extent, a blister may be applied over the region of the heart, and kept open some time by savin ointment.

II. The second indication is fulfilled by mercury given every one, two, or three hours with opium (Form. 295), and accompanied by mercurial inunction till the gums are sore. When the fever is great and the skin dry, the mercury may be combined with tartar emetic in doses of $\frac{1}{4}$ to $\frac{1}{4}$ of a grain. Rheumatic pericarditis should be treated with blisters and the appropriate remedies. Mercury is useless.

2. CHRONIC PERICARDITIS.

SYMPTOMS.—Palpitation and dyspnœa, accompanied sometimes by dry cough; inability to lie on the left side; slight pain or uneasiness in the region of the heart; sense of oppression; great debility; and slow and imperfect convalescence, or a fatal termination in hydro-pericardium.

CAUSES.—Chronic pericarditis is generally a sequel of the acute form of the disease; and is especially apt to follow an attack of acute rheumatism. The symptoms are sometimes very obscure.

TREATMENT.—Blisters to the region of the heart. In the rheumatic, the appropriate eliminatives; in the debilitated, iron, in combination with iodine or quinine. During convalescence violent exercise should be avoided, and a nourishing, unstimulating diet allowed.

SEQUELÆ.—Important structural changes often remain when the symptoms of pericarditis, whether acute or chronic, have been removed. The pericardium may be thickened, and the subjacent capillary vessels enlarged. There may be serum, or lymph, or pus in the pericardium, adhesions, partial or general, and organized deposits of fibrin, in the form of granulations and vegetations. The false membranes may become fibro-cartilaginous, or even osseous. The effused fluid, or the thick false membranes, embarrass the action of the heart. The muscular tissue may,

like the serous, fibrous, and cellular tissues of the heart, become thickened, and hypertrophied, indurated or softened, by the extension of the inflammation from the pericardium (see Carditis).

These changes may be detected by careful stethoscopic examination. The superficial to-and-fro sound of acute pericarditis is generally absent. The denser deposits on the surface of the pericardium are indicated by harsher and louder sounds, corresponding to the apex or base of the heart.

Partial adhesions of the two layers of the pericardium are sometimes productive of no unusual sounds; at others, of some modification of the friction sounds.

Extensive adhesions of the two layers of the pericardium generally lead to irregular action of the organ, and are accompanied by a well-marked retraction of the epigastrium, and hollowing of the intercostal spaces with each systole of the heart; and the heart's beat continues to be perceptible in the same spot, in all positions of the body, and in all states of the respiration.

An abundant effusion into the sac of the pericardium constitutes Hydro-pericardium.

HYDRO-PERICARDIUM.

VARIETIES.—1. Active, from inflammatory action. 2. Passive, from obstruction to the circulation.

The symptoms of the *passive* form are generally obscure. They are a sense of weight and oppression in the præcordia, great dyspnœa, a dusky suffused countenance, a tendency to syncope, œdema, and a small, frequent, irregular pulse. The patient usually sits up in bed, afraid of the least exertion, or slightest change of position.

LOCAL SIGNS.—When the effusion is considerable, prominence of the præcordia, with bulging of the intercostal spaces, extensive dulness, reaching sometimes from nipple to nipple and nearly the whole length of the sternum; the pulsations of the heart imperceptible when the patient lies down, and shifting their place in the erect and sitting posture; the sounds indistinct in the region of the heart, but more audible at the upper part of the chest; the dulness varying in situation and extent with the posture.

PROGNOSIS.—Unfavorable.

TREATMENT.—That of dropsies in general, by drastic purgatives and diuretics, modified according to the state of the patient and existing complications, and assisted by large blisters to the region of the heart, kept open by savin ointment.

In a few cases, where the accumulation of serum has been very large, and the disease is free from other visceral complication, tapping has been practised with success. The spot selected for the operation is the fifth intercostal space, through which a trocar of small size is introduced—from below upwards.

ENDOCARDITIS.—INFLAMMATION OF THE ENDOCARDIUM.

SYMPTOMS.—General feeling of uneasiness, anxiety, and oppression at the præcordia, with a tendency to syncope; but no pain, unless the disease be complicated with pericarditis or pleurisy. In the more severe cases there is well-marked fever, hot and dry skin, thirst, and restlessness; violent and irregular action of the heart, with a small, feeble, and often intermittent pulse; jactitation; cold sweats; pale and shrunken features, expressive of extreme alarm; dyspnoea, faintness, or actual syncope; lividity of the lips and cheeks; slight swelling of the hands and feet; and short convulsive seizures.

MORBID ANATOMY.—1. Redness of the endocardium, sometimes general, but more often partial; usually confined to the valves, and accompanied by some thickening, infiltration, and softening of the membrane. 2. Effusion of white, elastic, glutinous masses of coagulable lymph, firmly attached to the free borders of the valves, adherent to the parietes, twined round the valvular tendons and fleshy columns, and often prolonged into the large vessels. 3. Vegetation, varying in size from a millet-seed to a small pea, single or clustered, smooth or rough, and when very numerous resembling a cauliflower, on the free borders of the valves, and sometimes on the surface of the cavities. 4. These valvular vegetations are often accompanied by fibro-cartilaginous or calcareous indurations, which contract the orifices of the heart so as to impede the circulation, and cause cardiac dropsy. Sometimes the opposite borders of the valves adhere.

CAUSES.—Those of pericarditis, which it often accompanies.

DIAGNOSIS.—The stethoscopic indications mentioned under diseases of the valves. The murmurs are generally of a low pitch, and are sometimes musical. We cannot be sure of the existence of *acute* endocarditis unless the murmur be developed under observation.

PROGNOSIS AND TERMINATIONS.—The disease is rarely fatal in its acute stage. Its duration is uncertain, and much influenced by the habits of the patient. It may continue for years, with slowly increasing embarrassment of the circulation; forming a *chronic valvular disease*, with *hypertrophy*, and ending either in sudden death or in dropsical effusions. If particles of fibrinous exudation become detached from the inflamed valves and carried along in the arteries, they may eventually block up some of the smaller branches, and thus produce the condition known as *embolism* and its consequence (See Vol. I., p. 74; Vol. II., p. 85).

TREATMENT.—That of pericarditis. In the acute form, and in vigorous subjects, active and prompt treatment is still more necessary.

When endocarditis becomes chronic without organic disease, the symptoms may be alleviated by small and repeated bleedings, cupping or leeching; gentle aperients; counter-irritants; the warm bath; repose; and a strictly regulated diet.

CARDITIS, OR MYO-CARDITIS.

SYMPTOMS.—Carditis, or inflammation of the substance of the heart, rarely occurs as a distinct affection, and the post-mortem appearances which characterize it have generally been found combined with pericarditis, or endocarditis, or both. The muscular tissues of the heart may, however, be separately affected, as are the ordinary muscles in muscular rheumatism.

Palpitation, with strong and abrupt contractions of the organ, a very frequent, full, and bounding pulse, and a dull, heavy sensation in the region of the heart, with paroxysms of severe darting or shooting pain, extending to the shoulders and down to the arms, with some degree of dyspnoea, are the symptoms present in this disease. Muscular rheumatism in other parts of the body may be looked for.

I have known such symptoms supervene on a severe attack of muscular rheumatism, without any indication of inflammation in the pericardium or endocardium. The treatment should be that of muscular rheumatism, with counter-irritation to the region of the heart, and, in the most severe cases, general or local depletion. (G.)

The symptoms are often very obscure. After death we may find softening, suppuration, ulceration, and even perforation of the cardiac parietes.

ATROPHY.—FATTY DEGENERATION OF THE HEART.

SYMPTOMS.—Occasional fainting, and transient attacks of giddiness in some cases, and the symptoms of angina pectoris in others. The most common termination is in sudden death under change of posture or slight exertion, the patient having previously suffered from debility, with great pallor of countenance and anasarca; but in some instances he is stout and apparently healthy. The respiration is sometimes affected in the manner described at §§ 817. The pulsations of the heart are small and feeble, the impulse weak, and scarcely to be felt, and the sounds indistinct. The least exertion renders the heart's action fast and irregular, and then some of the pulses become so feeble as not to be appreciable at the wrist. The pulse is very compressible, intermittent, and small, and, in a state of quietude, usually below the natural frequency.

CAUSES.—*Predisposing.* The male sex; age above 50; habits of intemperance, combined with a sedentary life; exhausting diseases; such as hemorrhage, typhus fever, pulmonary consumption, emphysema of long standing, and dropsy.—*Proximate.* Compression of the heart by deposits of fat, by effusion of fluid, by tumors; carditis; congenital absence of one, or defect of both coronary arteries.

MORBID ANATOMY.—Fatty degeneration of the muscular tissue of

the heart, which is soft, flabby, and of a dirty dark-brown or pale drab color. When cut, a greasy film is left on the scalpel. In extreme cases the walls of either ventricle may be broken down between the thumb and finger. The fibres lose their faint striation, and the sarcous matter is more or less completely changed into fat, observable in the form of distinct highly refractive spherules. Fig. 60 shows the early (A), and the latter stage (B) of fatty degeneration of the muscular fibres of the heart. In A the oily particles are arranged in rows, in B they are irregularly distributed. Fatty degeneration of the liver and kidneys, and of the aorta, emphysema of the lungs, and ulceration of the stomach, are frequent concomitants.

TREATMENT.—Nutritious diet, digitalis, tonics (Form. 150), and stimulants (Form. 2), and occasional doses of brandy; carriage exercise.



Fig. 60.

Great watchfulness on the parts of the attendants, if the condition be suspected. The disease does not admit of cure.

DISEASES OF THE VALVES OF THE HEART.

SYMPTOMS.—When the valves of the heart are the seat of disease the blood is not only impeded in its flow out of the heart, but, from defective closure of the valves is subject to regurgitation. The obstruction to the circulation of blood through the heart thus set up leads to hypertrophy of the organ, and sooner or later to congestion of the lungs or other viscera, ultimately ending in grave diseases, of which dropsy is the prominent symptom. The symptoms attendant on valvular disease are by no means uniform; they vary with the valve which is the seat of the disease and with the nature, extent, and duration of the morbid change itself. The general symptoms are tumultuous palpitation, a frequent pulse, a sense of weight, tightness, and oppression, sometimes accompanied by pain in the region of the heart and at the epigastrium; dyspnoea; an inability to lie on one or both of the sides; flatulency; frequent feelings of faintness, and giddiness, or fits of syncope; an anxious expression of

countenance, with slight knitting of the brows; the face sometimes pale, sometimes suffused. These symptoms are greatly increased by active exertion, walking up hill, or mounting stairs, and by violent mental emotion.

In order to ascertain the effects of valvular disease upon the several parts of the circulation, and their influence in the production of disease of the viscera, it will be necessary to consider each valve separately, premising these two facts: first, that disease may affect more than one valve simultaneously; secondly, that while the valves on the left side are very prone to disease, those on the right are rarely affected.

Disease of the right auriculo-ventricular (tricuspid) valve, allowing regurgitation from the ventricle into the auricle.—Proximate effects. Slight hypertrophy of the right cavities, and increased præcordial dulness to the right; epigastric and right sternal impulse. A soft *systolic* murmur at the ensiform cartilage. *Remote effects.* Cervical veins distended, varicose, and pulsatile; when a finger is pressed upon them they do not become empty below it; congestion of the venous circulation, producing corresponding obstruction to the arterial. The brain becomes oppressed and the patient suffers from congestive headache, and is liable to apoplexy. The liver becomes gorged with blood and enlarged; the portal circulation is impeded, and the mucous membrane of the stomach and intestines congested. Piles, and voiding of blood from one or other, or from both extremities of the alimentary canal, are among the symptoms. The kidneys soon become congested, and the urine scanty, and sooner or later albuminous ascites, oedema of the legs, and at last general anasarca follow.

Disease of the right auriculo-ventricular orifice obstructing the flow of blood from the auricle into the ventricle.—If the tricuspid orifice be merely constricted the action of the valves remaining perfect, there would be but slight congestion of the venous circulation without pulsation in the veins, and a *diastolic* (*auricular systolic* or *præsystolic*) murmur would probably be heard at the ensiform cartilage. But such a condition is exceedingly rare.

Disease of the pulmonary valves with permanent patency.—Proximate effects. Signs of hypertrophy of right cavities of the heart; and “along the sternum a well-marked *double murmur*, similar, in every respect, to that observed in the ordinary case of permanently open aortic valves, loudest at the base of the heart, and becoming less distinct as the stethoscope is moved towards the apex, where it ceases to be audible.” (Stokes.) —*Remote effects.* Dyspnœa, palpitation, some venous congestion.

Disease of the pulmonary valves obstructing the passage of blood into the lungs.—If the pulmonary orifice become contracted, the pressure of accumulated blood in the right ventricle will lead to regurgitation into the right auricle, followed by general venous congestion, as detailed under regurgitant disease of the tricuspid valve, and hypertrophy of the ventricle.

Disease and congenital defect of the pulmonary valves are very rare.

Disease of the left auriculo-ventricular (mitral) valve, permitting regurgitation from the ventricle into the auricle.—Proximate effects. Enlargement of the left ventricle; increased præcordial dulness towards left side; apex-beat lower and more to the left; impulse greatly increased, often giving rise to a perceptible systolic thrill. A *systolic* murmur partially or completely obscuring the first sound of the heart, most distinct at the apex, and disappearing beyond the base, but heard distinctly on the left side, as far as the inferior angle of the scapula.

Remote effects.—The arteries do not receive their full share of blood, and the pulse is consequently small and contracted; congestion of the lungs.

Disease of the left auriculo-ventricular orifice, causing obstruction to the flow of blood into the ventricle.—If the mitral disease result in *contraction of the left auriculo-ventricular orifice*, as is sooner or later the case, pulmonary symptoms in proportion to the contraction supervene. The lungs become congested, and there is constant liability to pulmonary hæmorrhage, evidenced by pulmonary apoplexy, or hæmoptysis, often to a large amount. Dyspnoea is often very urgent; and there is chronic bronchitis. Sooner or later the obstruction to the pulmonary circulation affects the right side of the heart, its cavities become enlarged, general venous congestion ensues, and its ultimate result, anasarca, appears. A *soft diastolic (auricular systolic or præ systolic)* murmur, best heard at the apex, and not masking the second sound, is diagnostic of contracted mitral orifice. Later on, when the heart becomes enfeebled and the orifice much contracted, the murmur is no longer heard.

Disease of the aortic valves obstructing the exit of blood from the left ventricle (constriction of the aortic orifice).—Proximate effects. Great hypertrophy of the left ventricle; systolic thrill; strong heaving impulse; a loud, harsh *systolic* murmur at midsternum, inaudible, or nearly so, at apex.—*Remote effects.* If the constriction be great, the pulse, though regular in force and rhythm, is small, hard, rigid; hardness and force imply hypertrophy. When the action of the heart is weak, or the constricted orifice very smooth, the murmur may be absent, and in this case, even if the opening be no larger than a pea, there may not be the slightest œdema, even of the ankles.

Disease of the aortic valves preventing the closure of the orifice, and therefore allowing of regurgitation.—Proximate effects. Extreme hypertrophy of the left ventricle, and corresponding heavy prolonged impulse with diastolic and systolic thrill. A systolic or diastolic murmur, or both, obliterating the first or second, or both sounds of the heart, heard best at mid-sternum, distinctly heard in an upward direction towards the right shoulder; but weaker at the apex. The diastolic murmur is best heard in a downward direction towards the apex, where it may be either faint or strongly pronounced.—*Remote effects.* A characteristic sudden

jerking pulse. The pulsation of the superficial vessels is visible, and accompanied by considerable movement; slight pressure upon them often produces a sensible thrill.

Of all the affections of the valves of the heart this produces the least injurious effect on the circulation. Of itself it never causes dropsy.

MORBID ANATOMY.—Dilatation of the orifices, and incomplete closure by the valves; partial adhesion of the valves; contraction of the orifices with rigidity and roughening of the valves from fibrinous, atheromatous, cartilaginous, or bony deposits within their substance. Rupture of the valves or chordæ tendineæ.

DIAGNOSIS.—*Disease of the several valves and orifices* may be correctly diagnosed if attention be paid to the following points:—

1. The left side of the heart is very much more frequently affected than the right.—2. Generally, when the right side is the seat of disease the left side is affected also.—3. Diseases of the right side chiefly affect the venous circulation, causing regurgitation into the jugular veins (the *venous pulse*).—4. Diseases of the left side affect chiefly the arterial pulse, giving rise to irregularity and inequality.—5. Disease of the right side generally leads to dropsical effusions; disease of the left side to affections of the lungs; and disease of the aorta to head symptoms.—6. Sounds, whether on the right or left side, which accompany or take the place of the first sound of the heart, and are synchronous with the pulse, are due to the passage of the blood out of a ventricle—that is to say, to regurgitation into the auricle, or onward movement into the artery of side affected.—7. Sounds, whether on the right or left side, which accompany or take the place of the second sound of the heart, and are not synchronous with the pulse, are due to the entrance of blood *into* the ventricles, in consequence of the contraction of the corresponding auricles, or to regurgitation from the corresponding arteries.—8. Sounds heard at the base of the heart, and in the course of the aorta towards the right clavicle, becoming less audible towards the apex, indicate disease of the valves or coats of the aorta. If the sound accompany the contraction of the ventricle, and be synchronous with a regular, equal, *thrilling* pulse, it is due to disease of the valves or coats of the aorta; but if the sound accompanying the diastole of the ventricle be not synchronous with the pulse, which is, at the same time, abrupt and *jerking*, and the abrupt second sound of the heart be absent or very obscure, the sound is due to reflux through the open aortic valves.—9. If, on the other hand, the sound be synchronous with the systole of the ventricle, and with the pulse, which, at the same time, is wanting in volume, the sound is due to reflux from the left ventricle, through a diseased mitral valve, into the left auricle; but if the sound be not synchronous with the contraction of the ventricle, it is due to the passage of the blood from the auricle to the ventricle, through a diseased mitral valve.—10. The same rules apply to the right side of the heart. If the disease were in the pul-

monary artery, the sound would be heard in the track of that vessel towards the left clavicle.

CAUSES.—Rheumatic fever, chronic rheumatism, gout, Bright's disease of the kidneys, violent exertion, obstruction to the pulmonary circulation, atheromatous degeneration of the valves or great blood-vessels, aneurism of the aorta or pulmonary artery.

TREATMENT.—Must be directed to regulate the action of the heart and to prevent the tendency to dropsy, by relieving the systemic congestion. This is effected by hydragogue purgatives, the occasional and cautious abstraction of blood by a small orifice, great moderation in diet, and abstinence from all violent exertions and strong emotions. In the more advanced stages of the disease the treatment must be suited to the existing complications. The general principle of treatment will be to avoid all excitement of the circulation, and all remedies which impair the power of the heart; and, at the same time, to relieve any unusual embarrassment by moderate depletion. Undue action of the heart may be moderated by the internal use of digitalis and henbane, and the external application of belladonna or opium plasters.

HYPERTROPHY OF THE HEART.

This is the direct result of obstruction in some part of the circulation, of which it is, therefore, merely a symptom. The hypertrophy is due to the increased exertion made by the heart to overcome the obstruction to the flow of the blood. It may affect the whole heart, or be limited to one or other of its chambers.

The hypertrophy is usually accompanied by dilatation of the cavity or cavities.

SYMPTOMS.—Since the hypertrophy exactly compensates the obstruction, its effects involve the heart alone. The symptoms, therefore, which are associated with hypertrophy must be referred to the diseases that produce it, and not to the hypertrophy itself.

PHYSICAL SIGNS.—The impulse of the heart is greatly increased, and prolonged, and extends over a large space. It is visible to the eye, and forcibly raises the stethoscope. The first sound is obscure, when there is little or no dilatation; louder, more abrupt, and heard over a larger space when it is considerable; the second sound obscure in the former case, unusually distinct in the latter. There is dulness, varying with the degree of enlargement, and most extensive where dilatation is combined with hypertrophy. In some instances the left side of the chest is perceptibly wider and more prominent. When the right side of the heart is affected, the dulness is most marked over the lower part of the sternum, and the impulse is felt in the infra-sternal fossa.

CAUSES.—Violent exertion; prolonged efforts, as in gymnastic exer-

cises; plethora, valvular diseases and obstruction of the large vessels, or in the heart itself; pericarditis and endocarditis; chronic diseases of the lungs, especially emphysema; diseases of the kidney.

PROGNOSIS and TREATMENT have reference to the diseases which produce the hypertrophy. (See Valvular Diseases of the Heart.)

DILATATION OF THE HEART.

DEFINITION.—Dilatation of the cavities of the heart without corresponding increase of muscular tissue.

SYMPTOMS of dilatation with thinness of the parietes.—This is most common on the right side; and is characterized by fluttering of the heart, and a full, frequent, weak, and irregular pulse. In extreme cases swelling of the veins of the neck, and distinct venous pulse; great dyspnoea; a dusky skin; a bloated and anxious countenance; drowsiness; slight delirium; dropsical effusions.

PHYSICAL SIGNS.—Impulse feeble, short, and flapping, or tremulous, felt over a greater extent than usual; first sound short and peculiarly distinct, heard over a great extent of chest both before and behind.

CAUSES.—Debility; anæmia; chronic diseases of the lungs; emphysema; especially valvular diseases of the heart.

TREATMENT.—Tonics. Repose of body and mind, careful regulation of the diet, aperients. Gentle opiates and sedatives may occasionally be of service to allay irritability; dry cupping if there be urgent dyspnoea.

Partial dilatation, or true aneurism of the heart, consists in a protrusion of some part of its walls through disease of the muscular tissue. It is an equally rare, obscure, and fatal disease, differing little in the symptoms from those of more general dilatation of the cavities. The physical signs are obscure; the prognosis, when the disease is recognized, is in the highest degree unfavorable, and the treatment similar to that for more general dilatation—complete repose of body and mind, the cautious use of narcotic and sedative remedies, and, in cases of extreme urgency, cautious depletion. When the aneurism bursts, effusion into the pericardium takes place; the rupture is announced by a piercing cry of anguish, and usually by instantaneous death.

CYANOSIS.—BLUE DISEASE.

SYMPTOMS.—A blue tint of the skin, lips, mouth, and tongue; universal coldness of the surface; palpitation; fits of extreme dyspnoea; faintness, or actual syncope, on slight exertion, or from mental excitement; feeble and irregular pulse; œdema or dropsical effusions.

MORBID ANATOMY.—Congenital deficiency or malformation. A

single auricle and ventricle. A communication between the two sides of the heart, or between the two sets of vessels arising from it with disproportionate size of the two ventricles, generally combined with narrowing of the pulmonary artery. Extreme contraction of the pulmonary artery, the mitral orifice, or the left ventricle. Transposition of the aorta and pulmonary artery. Dr. Peacock finds that males are more frequently the subject of defective development than females, the proportion being as 57.2 : 42.8.

PHYSICAL SIGNS.—A very loud and superficial murmur immediately over the seat of the communication indicates that the communication is affected by a contracted orifice.

PROGNOSIS.—Death during a paroxysm at an early age ; in rare instances the patient attains the adult age ; and in one case recorded by Louis, the age of fifty-seven.

TREATMENT.—Rest of mind and body ; pure air ; warm clothing ; strict diet ; careful attention to the state of the stomach and bowels.

DEVELOPMENT OF ECHINOCOCCUS IN THE HEART.

This is a rare disease: but as it may simulate valvular disease of the heart, tubercular disease of the lungs, embolism, or disease of the arteries, it is worthy of consideration here. The symptoms vary with the situation of the cyst, and are urgent and characteristic according as it breaks into the right or left ventricle. The patient is usually well nourished. When the cyst burst into the right ventricle, pulmonary symptoms—urgent dyspnœa, bloody expectoration, severe pain in the præcordia, and death by suffocation—result. If rupture take place into the left ventricle, the symptoms are more remote and obscure. Mortification of a part of a limb, or of an entire extremity, from obstruction of a large artery by one of the secondary or tertiary cysts, is a likely result.

DISEASES ON THE ARTERIES.

OBLITERATION.

ATHEROMA.

ANEURISM OF THE AORTA.

OBLITERATION.

The arteries are liable to obliteration from any cause which for a time arrests the circulation through them. It appears that when their coats are inflamed the current of blood is retarded, and becomes at last quite stagnant ; coagulation follows, the clot adheres to the walls of the contracted tube, and the result is a fibrous cord. The most common cause

of obliteration is a process termed by Virchow, *embolism*—*i. e.*, the impaction of clots, fibrinous concretions, or atheromatous matter in the remote arteries.

SYMPTOMS.—Inflammatory obliteration is attended by local symptoms, such as tenderness and hardness of the vessel. The process is usually so slow as to allow of the establishment of collateral circulations. If more than one of the main trunks were simultaneously affected, dry gangrene would result. Embolism occurring in the extremities would also result in gangrene. If it occur in the internal carotids, softening of the brain, loss of vision, and hemiplegia may, one or all, result. If the plumonary artery be blocked by a clot at its bifurcation, death, more or less sudden, from asphyxia, will be the consequence. If the smaller superficial arteries be the seat of the embolism, sloughing ulcers may ensue.

ATHEROMA.

DEFINITION.—This term comprises both fatty and calcareous degenerations of the blood-vessels, atheroma proper being an intermediate condition. After the age of fifty the walls of the vessels are very liable to degeneration. The aorta, in particular, becomes dilated, the elasticity of its wall impaired, and its inner surface roughened by large, irregular, elevated patches of morbid matter, lying immediately beneath a superficial layer of the inner coat, and composed of a mixture of earthy and fatty matter.

SYMPTOMS.—When the disease affects the smaller arteries, such as the radial and temporal, they become rigid and tortuous, and feel like cords. A dilated atheromatous condition of the aorta is indicated by a loud systolic bellows murmur, commencing at mid-sternum, and extending thence towards the right shoulder, most distinct to the right of the sternum, and thus distinguished from murmurs due to disease of the aortic valves. Atheromatous disease of these valves is, however, very frequently associated with a similar degeneration of the contiguous part of the aorta. Owing to the diminished elasticity of the diseased artery, the pulse has the same sudden, jerking character as in regurgitant disease of the aortic valves. (See page 77.)

MORBID ANATOMY.—At first an opaque whitish spot is observed on the inner surface of the artery. It consists of a fatty degeneration of the tissues, immediately beneath the innermost layer. A vertical section presents the appearance shown in Fig. 61: *i* being the unaltered innermost layer; at *h* the corpuscles of connective tissue are enlarged, at *p* these cells are observed to be multiplying; at *a* the fatty degeneration in them is seen commencing; at *a'* this is in an advanced stage.

The next stage of the process consists in the deposit of molecules of earthy matter, and the separation of cholesterin. If we examine the dis-

integrated portion of the arterial wall at this stage, we observe large rhombic plates or prisms of cholesterin *c c c* (Fig. 62); and cells of the internal coat transferred into fatty-granule globes *a a*, imbedded in free granular matter, composed in part of earthy matter, and in part of free drops of oil, large and small. (Virchow.) These accumulated deposits either form a pultaceous matter, which may be discharged into the blood through an aperture formed in the internal coat, leaving the so-called atheromatous ulcer; or they may, by the increase of the earthy particles, become petrified into irregular ossific plates. In the smaller arteries the ossification proceeds much more uniformly, and they become at last more or less completely converted into smooth bony tubes.

The capillaries are equally liable to degeneration. When their walls are invaded with fat, they present a granular appearance.

As a result of this condition their elasticity and contractility is im-



Fig. 61.

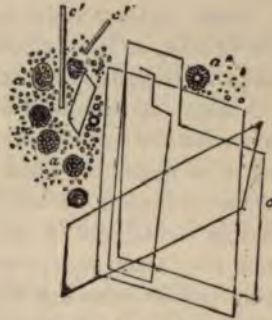


Fig. 62.

paired, they become permanently dilated, and the blood tends to become stagnant in them.

EFFECTS.—*Proximate.* Rupture; atheromatous ulceration of the inner coat, with aneurismal dilatation of the outer; dilatation resulting first in congestion, and finally in rupture of the capillaries, especially those of the brain, causing sanguineous apoplexy.—*Remote.* Hypertrophy of the heart; embolism.

CAUSES.—The rheumatic and gouty diathesis.

TREATMENT.—The avoidance of hurry, exertion, and fatigue; animal diet; tonics in combination with alkalis.

ANEURISM OF THE AORTA.

1. ANEURISM OF THE THORACIC AORTA.

SYMPTOMS.—The general symptoms produced by an aneurismal tumor in the chest are the same as those due to any other tumor of equal size

and similar situation—*dyspnœa*, and more or less consolidation of the lung, from pressure of the aneurismal tumor; a harsh, harassing cough, with little or no expectoration, paroxysmal dyspnœa, from pressure on the bronchial tubes; *aphonia*, and obstruction of the glottis, from unilateral atrophy of the laryngeal muscles due to pressure on the left recurrent nerve (Bristowe); *dysphagia*, from pressure on the œsophagus; *obstruction to the venous circulation*, accompanied in extreme cases by dropsical effusions into the cellular membrane of the face, neck, chest, and upper extremities, from compression of the large venous trunks; *neuralgia of the back* and *paraplegia*, from absorption of the vertebra and pressure on the spinal marrow; and defective nutrition, from pressure on the thoracic duct.

DIAGNOSIS.—Difficult, when the tumor is of small size, or occupies the origin of the aorta. When it involves *the arch of the aorta*, or its first branches, and especially when it has so far increased as to rise out of the chest, the diagnosis becomes comparatively easy. When, again, the tumor, by its gradual increase in size, causes the protrusion of the sternum or ribs, or leads to their absorption, its strong heaving impulse will make the diagnosis certain.

A *whizzing* sound, or a bellows murmur, single, or double, is usually heard over the tumor; but these sounds are not always present, nor are they to be depended upon in the absence of other symptoms, since they may be produced by any tumor pressing upon the larger arteries. A palpable thrill, and a quick thrilling pulse, are occasionally present. When the tumor occupies the arch of the aorta, or its branches, we may expect to find some marked inequality in the pulsations of the radial and carotid arteries. Sometimes there is an absence of the pulse at the wrist, of one or of both arms, and occasionally of one or both carotid arteries; and there are signs of disturbed circulation through the brain, such as giddiness, faintness, and indistinct vision. Hæmorrhage from the lungs or stomach will have additional value as a sign of aneurism in the ascertained absence of symptoms of pulmonary consumption and obstruction to the portal circulation; if the tumor be large, dulness and bronchophony in proportion to the compression of the lung will be observed. A sensation of throbbing in the chest, difficulty of deglutition, and, in the later stages, vomiting and spasmodic dyspnœa, complete the evidences of thoracic aneurism.

MORBID ANATOMY.—Laceration of the internal coats of the artery, and saccular dilatation of the external. Extravasation of blood between the layers of the artery, causing their dissection and dilatation. But the commonest cause of aneurism is fatty or atheromatous degeneration.

PROGNOSIS.—Unfavorable; but the disease progresses slowly.

TREATMENT.—Perfect repose of mind and body, a cool moderate diet, a free state of bowels, occasional cautious depletion when urgent symptoms require it; a belladonna plaster to the region of the heart, and digi-

talis in small and repeated doses to moderate the heart's action. The dry harsh cough will require the use of sedatives, with expectorants, and anasarca must be treated by the remedies prescribed under that head.

2. ANEURISM OF THE ABDOMINAL AORTA.

SYMPTOMS.—These vary with the size and situation of the tumor, and the viscera on which it presses. When the aneurism presses on the stomach, it gives rise to severe gastric disturbance; on the nerves of the solar plexus, to neuralgic pains; on the bowels, to obstinate constipation or violent colic; on the nerves issuing from the spine, to severe pain in the loins, abdominal parietes, or lower extremities, simulating rheumatism of those parts, sciatica, lumbar, and psoas abscess, or spinal disease. By pressure on the rectum, it has sometimes led to a suspicion of stricture of that part. When the tumor occupies the upper part of the abdominal aorta, it may thrust up the diaphragm, and give rise to dyspnoea and other symptoms of pulmonary disease.

Occasionally the diseased part of the artery is suddenly blocked by a detached clot, and the patient, who was to all appearance in perfect health, drops down as if shot; he is taken up completely paralyzed as to motion and sensation in the lower limbs, and on examination no pulsation can be detected in the femoral arteries. Such a case occurred in my practice a few months ago. The patient died within a fortnight, the lower part of the body, including the bladder, being in a gangrenous state.

DIAGNOSIS.—A tumor occupying the situation of the aorta, strongly pulsatile at the sides. The pulsation of a healthy aorta is communicated to a loaded intestine or other tumor seated over it, but that of an aneurism is stronger and more diffused.

PROGNOSIS and TREATMENT are those of aneurism of the thoracic aorta.

DISEASES OF THE VEINS.

PHLEBITIS Inflammation of the Veins.
PHLEGMASIA DOLENS White Leg.

PRELIMINARY OBSERVATIONS.—*Thrombosis, Embolia, and Pyæmia.*—Before describing diseases of the veins it is necessary to say a few words on the formation of clots in the circulatory organs, to which process the term *thrombosis* has been given. When foreign matters such as iron, or liquids such as mercury or pus, are introduced into the vessels, the blood coagulates upon their surfaces; and a clot of fibrin, or of blood formed within the blood-vessels, tends to increase by superposition of layer upon layer of coagulum. Thrombosis, therefore, may be caused by phlebitis, arteritis, and endocarditis, in consequence of solid inflammatory

exudations on the inner surface of the veins, arteries, or heart. A film forms on the roughened inflamed surface; and, subsequently, layer after layer is deposited until a clot or thrombus of considerable size is formed, which is attached by one extremity to the inflamed surface, while the other may freely vibrate in the passing current of blood, or may reach to the other side of the vessel and obstruct the flow of blood from below.

The subsequent changes which these clots undergo give rise to some most interesting and important pathological processes. If they slowly deliquesce without undergoing further change, no bad effects result. If the entire thrombus, or a large fragment of it, be detached, it may be carried from a large vein into the pulmonary artery, and produce instantaneous suffocation; thrombi from the left side of the heart may become impacted in a carotid or brachial artery; clots from the surface of the aorta may block up any of its branches; in either case sloughing ulceration of a part, or mortification of the whole limb, will most probably en-



Fig. 63.

sue. If the clot undergo gradual disintegration into fine particles, these will be arrested in the capillary circulation, giving rise to *capillary embolia*, resulting in softening or ulcerative degeneration of the contiguous part. But even greater evils may result from the presence of clots in the circulation. The central parts are often changed into a puriform mass composed of granules (A, fig. 63) derived from the disintegrated fibrin; corpuscles undistinguishable from pus corpuscles (B); and altered blood discs (C). Virchow says that the second form are "Colorless blood corpuscles set free by the softening." But evidence is wanting to prove that leucocytosis can take place to this extent in the blood itself; and the effects of metamorphosis resemble those of pyæmia. It matters little whence the pus-cells are derived, the result is the same. They form, wherever they are carried, the nuclei of other clots which, in process of time, become centres of suppurative inflammation; and thus abscesses may be deposited simultaneously in all parts of the body.

PHLEBITIS.—INFLAMMATION OF THE VEINS.

VARIETIES.—Adhesive, and suppurative (pyæmia).

PATHOLOGY.—Idiopathic adhesive phlebitis commences in inflammation of the coat of the vein, causing dilatation and impairment or loss of contractility, leading to stagnation and subsequent coagulation of the blood. The disease is strictly local at first, and if the coagulated blood be very gradually disintegrated or absorbed, it may remain so, and the vein may be ultimately restored to its original condition. If, however, portions of the coagula become detached, embolism may result. If they undergo purulent degeneration, the phenomena of suppurative phlebitis (pyæmia) appear.

SYMPTOMS.—In the superficial veins, swelling and induration, sometimes accompanied by lines of redness; pain increased by pressure; œdema of the cellular tissue, and enlargement of the veins below the part. In the suppurative form, all the symptoms of the pyæmia (see Vol. I., p. 313). As the disease advances, the joints often become painful and tender, inflammation of the viscera, or of their serous investments, shows itself, and collections of pus, with little or no inflammation of surrounding textures, form in different parts of the body.

CAUSES.—*Predisposing.* Cachexia.—*Exciting.* In rare instances, cold; in most cases, inflammation spreading from surrounding tissues, or injury to the veins themselves, and operations generally, as in bleeding. Phlebitis is also apt to supervene on fractures, or on operations on bones; and it often originates in the internal viscera, as in the uterus after childbirth.

MORBID ANATOMY.—Discoloration of the inner coat of the vein; inflammation and thickening of the other coats; inflammation and suppuration of the surrounding textures; formation of coagula and pus within the vein; deposits of pus in the joints and serous cavities or in the spleen or kidneys; but chiefly in the lungs and liver.

DIAGNOSIS.—From *inflammation of the absorbents*, by the absence of superficial redness and the larger size of the inflamed vessel, which forms a tender, hard, knotted cord.

PROGNOSIS.—Favorable in inflammation of the external veins, arising spontaneously or from cold. Less favorable in phlebitis following wounds, or injury to the vein. Secondary abscesses in external parts may be regarded as favorable.

TREATMENT.—Leeches in the course of the inflamed vein. A position favorable to the return of blood to the heart. Warm fomentations. If the fever be great, aperients, or calomel and opium; if of the typhous character, wine, brandy, and diffusible stimulants, with opium. In most cases quinine, with a liberal allowance of wine or brandy. Close attention should be paid to uneasiness or pain in parts of the body remote

from the seat of the disease, as indicating collections of pus requiring prompt relief by the knife.

PHLEGMASIA DOLENS.—PHLEGMASIA ALBA.—WHITE LEG.

DEFINITION.—Obstruction, usually of an inflammatory character, of the femoral vein, or of the femoral and iliac veins.

SYMPTOMS.—From one to five weeks after delivery, a painful elastic swelling of one or both legs, beginning generally in the groin, labium, and thigh, and thence extending downwards; characterized by great heat and tenderness, a pale, shining surface, and stiffness. It is commonly ushered in by rigors, with pains in the loins or belly; and is accompanied by fever, thirst, a quick and frequent pulse, headache, nausea, and a furred tongue.

CAUSES.—*Predisposing.* The puerperal state.—*Exciting.* Inflammation of the iliac and femoral veins, generally commencing in the veins of the uterus and viscera of the pelvis.

PATHOLOGY AND MORBID ANATOMY.—Those of adhesive phlebitis.

DIAGNOSIS.—From *œdema*, by the absence of pitting on pressure. From *common inflammation* by the pale, shining aspect of the surface.

PROGNOSIS.—Generally favorable, but recovery often tardy.

TREATMENT.—Leeches, warm fomentations to the painful limb, which should be kept in the horizontal position. The bowels should be free. If there be much fever, saline diaphoretics and slight mercurialism. After the inflammation has subsided, iodide of potassium; friction with mercurial or iodine ointments.

CHAPTER III.

DISEASES OF THE ORGANS OF RESPIRATION.

1. Of the Larynx and Trachea.
2. Of the Bronchial-tubes and Air-cells.
3. Of the Substance of the Lungs.
4. Of the Pleura.

DISEASES OF THE LARYNX AND TRACHEA.

LARYNGITIS	Inflammation of the Larynx.
APHONIA	Loss of voice.
TRACHEITIS	Croup.
LARYNGISMUS STRIDULUS .	Crowing Inspiration.

LARYNGITIS.—INFLAMMATION OF THE LARYNX.

SYNONYM.—Cynanche laryngea.

VARIETIES.—1. Acute. 2. Chronic.

1. ACUTE LARYNGITIS.

SYMPTOMS.—The disease sets in with rigors, followed by pyrexia, and usually by some inflammation of the tonsils, a hoarse voice, a husky and convulsive cough, constant hawking of glutinous mucus with pain and constriction in the larynx, generally increased by pressure. The respiration is difficult and noisy. There is great pain in deglutition, and particles of food and liquid are apt to get into the imperfectly closed glottis, causing convulsive fits of coughing and dyspnœa. The fauces are generally found red and swollen; and, if the tongue be pressed downwards and forwards, the epiglottis may be seen thickened, inflamed, and erect. There is inflammatory fever, with flushed face, hot skin, and full, hard pulse. These symptoms are followed by others of a more formidable character. The countenance becomes pale and anxious; the lips livid; the eyes suffused; the nostrils expanded; the pulse frequent, feeble, and irregular; the voice reduced to a whisper or lost; the throat often œdematous. There is extreme restlessness, and urgent fear of suffocation. The patient is obliged to maintain the sitting posture, and if he fall asleep he

soon awakes dreadfully agitated, gasping and struggling for breath. Delirium and coma ensue, and death takes place in from four to five days. But the patient may die suffocated at a much earlier period.

MORBID ANATOMY.—Injection and thickening of the lining membrane of the larynx, with œdema of the sub-mucous tissue, and surrounding cellular membrane. The glottis and epiglottis red, swollen, and infiltrated with serum, or pus. In some cases œdema of the glottis is the only post-mortem appearance.

DIAGNOSIS.—From *spasmodic affections of the larynx*, by the presence of fever and local pain, and by the gradual progress of the disease; from *tracheitis*, by the absence of the peculiar stridulous voice, and of the croupy inspiration; and, as a general rule, by the greater age of the patient.

PROGNOSIS.—Unfavorable if the dyspnœa be extreme, the face livid, the circulation languid, and the head affected. Decrease of dyspnœa, a free expectoration, an improved aspect of countenance, and greater ease in swallowing are favorable signs.

CAUSES.—*Predisposing.*—Previous attacks of quinsy, undue exertion of the voice, syphilis.—*Exciting.* Exposure to wet and cold; extension of inflammation from the tonsils or salivary glands; swallowing scalding or corrosive liquids; inhaling acrid gases or hot air; extension of inflammation in erysipelas, scarlatina, small-pox, measles, and diphtheria.

TREATMENT.—I. The most prompt and active measures are needed to reduce the inflammation and prevent effusion. Two to six leeches must be immediately applied over the part, followed by tartarized antimony, and calomel. A grain of calomel, with from an eighth to a sixth of a grain of tartarized antimony, and a third or half a grain of opium, may be given every one, two, or three hours, according to the urgency of the symptoms. The object of this treatment is to reduce inflammation by the tartar-emetic, to supersede inflammatory action by the mercury, and to soothe existing irritation by the opium.

II. If effusion have already taken place, blisters should be applied on either side of the larynx, and the mercury be continued till slight salivation is produced. It may be facilitated by the inunction of mercurial ointment.

When the laryngitis supervenes on some other disease, the treatment must be modified according to the disease and existing state of the system.

III. When, in spite of the remedies, the dyspnœa increases rapidly, and there is urgent danger of suffocation, the operation of opening the trachea should be resorted to without loss of time.

Throughout the treatment the patient should be prevented from talking, and protected by a warm (75° Fahr.) and moist air.

2. CHRONIC LARYNGITIS.

SYMPTOMS.—Hoarseness, sometimes increasing till the voice is reduced to a whisper, or quite lost; dry, husky cough; pain or soreness in the larynx, increased by lateral or backward pressure. The cough is brought on by exertion, or cold air, and is accompanied, in the first stage, with scanty mucous expectoration; in more advanced cases, and when ulceration is present, the sputa are purulent, and streaked with blood, or sanious and foetid. In confirmed cases dyspnoea is always present, coming on generally in paroxysms, and leaving the patient nearly free in the intervals; but in the last stage of the disease, it is increased to orthopnoea, obliging the patient, during the fits, to sit up in bed. In the intervals the breathing has a peculiar hissing sound. The patient generally dies cold, livid, and asphyxiated.

MORBID ANATOMY.—Inflammation and its consequences in the mucous and submucous textures of the larynx; enlargement of the mucous follicles; œdema; ulceration of the mucous membrane; ossification, or caries of the cartilages.

CAUSES.—Those of the acute form; the inhalation of air loaded with dust or irritating particles of matter; syphilis; the abuse of mercury; tubercle. Ulceration from the cause last named occurred in about a fourth of the cases of phthisis quoted by Louis.

DIAGNOSIS.—By partial or complete aphonia, the husky cough, hissing breathing, and pain or tenderness in the larynx. Tubercular laryngitis may be distinguished from simple inflammation or œdema by the co-existence of phthisis; and syphilitic laryngitis by the presence of other secondary symptoms.

PROGNOSIS.—*Favorable.* The absence of signs of disease of the chest; the catarrhal or syphilitic varieties of the disease.—*Unfavorable.* Increasing difficulty of deglutition from the spasmodic cough caused by the passage of food into the air tubes; orthopnoea; lividity.

TREATMENT.—I. The chronic inflammation may be subdued by the repeated application of a few leeches to the upper part of the throat, and by the use of blisters, mustard-poultices, and iodine ointment. Talking should be interdicted.

II. In the syphilitic form, mercury should be given in small doses, so as to affect the mouth, or iodide of potassium, in five-grain doses.

III. The tone of the relaxed mucous membrane may be restored by the inhalation of steam or spray holding some stimulant in solution, as kreasote, camphor, turpentine, or one of the balsams; or by the still stronger stimulants, nitrate of silver, and sulphate of copper, applied directly to the part, in a liquid or solid form. The preference should be given to a strong solution of nitrate of silver, applied by a small probang to the epiglottis and upper part of the larynx. Solid substances must be used in the form of an impalpable powder, and drawn into the larynx

through a tube. Nitrate of bismuth; calomel with twelve times its weight of sugar; red precipitate, sulphate of zinc, or sulphate of copper, mixed with thirty-six times their weight of sugar; alum with twice its weight; and acetate of lead with seven times its weight—are remedies suitable for this purpose.

IV. The paroxysms of dyspnœa, or convulsive cough, may be relieved by opium, æther, camphor, belladonna, or stramonium, inhaled or given in the form of lozenge. When the patient cannot swallow, it may be necessary to feed him by the œsophageal tube and stomach-pump; when the urgent symptoms cannot be otherwise relieved, tracheotomy must be performed.

V. The improvement of the general health may be effected by tonics, especially iron, and the mineral acids, nourishing and wholesome diet, bracing air, the cold or shower bath, with strict attention to the functions of the stomach and bowels, and to the state of the secretions.

APHONIA.—LOSS OF VOICE.

As every condition which impairs the functions of the vocal cords produces a corresponding loss of voice, the causes of aphonia are very numerous; and for their correct diagnosis the use of the *Laryngoscope* is indispensable. This instrument consists of two mirrors, one for the forehead (the frontal), the other for the mouth (the laryngeal). The following are the directions for using it:—In the absence of direct sunlight, which is always to be preferred to artificial light, seat the patient in a dark room, and place an argand gas burner, or moderator lamp, so far behind his right shoulder that the face is in the shade, the light being on a level with the eye of the operator seated in front. Cause the head of the patient to be thrown so far back that the light from the frontal mirror may shine brightly into the back of the mouth against the soft palate. The distance between the frontal mirror and the mouth, which gives the brightest illumination, is about a foot. If the patient cannot command the tongue so that it may lie relaxed on the floor of the mouth, the tip, being covered with a handkerchief, should be seized between the thumb and finger, and drawn forwards.

The laryngeal mirror is now warmed (by passing it twice or thrice above the flame of the lamp), and introduced to the isthmus of the fauces just within the pharynx, so as to tuck up the uvula and soft palate above and behind it; at the same time avoiding contact with the tongue and back of the pharynx, otherwise expulsive action is excited. On depressing the handle of the mirror, the back of the tongue, the epiglottis, and finally the vocal cords and parts bounding the aperture of the glottis, are brought into view (Fig. 64). In some persons, and under favorable circumstance, the rings of the trachea, and the apertures of the right and

left bronchi, may be seen as the patient takes a deep inspiration (Fig. 65). The vocal cords appear as two ivory-like rounded ridges, and if the patient be directed to ejaculate "ah!" they are seen to approximate closely, and then, during inspiration, to become widely divergent. The movements are vibratile, and very rapid.

When the fauces are very irritable, a few drops of chloroform may be inhaled. In some nervous subjects two or three sittings may be required before a view of the glottis can be obtained.

CAUSES OF APHONIA.—These may be functional or organic. 1.



Fig. 64.



Fig. 65.

z, base of the tongue. *e*, epiglottis. *e w*, cushion of the epiglottis. *s*, cartilages of Santorini overlying the arytenoid cartilages. *w*, cartilage of Wrisberg lying in the fold of membrane which extends from the summit of the arytenoid, on either side, to the epiglottis. *g a*, tubercle which sometimes exists between the cartilage of Santorini and Wrisberg. *u st*, inferior, or true vocal cords. *o st*, superior or false vocal cords. *v M* the depressions between them, leading to the ventricles of the larynx. *a e*, aryteno-epiglottic ligament, lying in the aryteno-epiglottic folds of mucous membrane. *u l*, rings of trachea. *bd*, *bs*, right and left bronchus. (Czermak.)

Functional aphonia is caused by paralysis or excessive debility of the muscles of the larynx, as in cerebral-apoplexy, diphtheria, cholera. Hysteria is a common cause of aphonia, but in this disease the voice is not lost but suppressed, and the patient may talk in her sleep, or be induced to do so under the influence of electricity. Severe fright occasionally causes temporary loss of speech. In all cases of functional aphonia the vocal cords lie almost parallel, separated by a variable interval, and immoveable.



Fig. 66.

Œdema of the glottis, the superior vocal cords *a a* and the aryteno-epiglottidean folds much swollen, the former almost meeting over the true vocal cords.



Fig. 67.

Partial loss of the epiglottis (syphilitic) and swelling of false vocal cords. Symptoms, hoarseness, passing into aphonia. (Czermak.)

2. *Organic Aphonia*.—The causes of organic aphonia are the following:—Laryngitis; œdema; chronic thickening; ulceration; tubercular deposits; cancerous, warty, or cystic tumors of the vocal cords or aryte-

noid cartilages; abscesses or other tumors of the contiguous parts projecting between the vocal cords, or pressing on them. The margin of the glottis is a very common seat of warty excrescences.

TREATMENT.—Functional aphonia generally, and especially that caused by paralysis, is benefited by electricity. In debility the treatment



Fig. 68.

a a, the true vocal cords, below which are two sub-glottic swellings, meeting in the centre. *b*, epiglottis. *c c*, arytenoid cartilages. *d*, back of tongue. (Gibb.)



Fig. 69.

Polypus attached to the right vocal cord, the real cause of a supposed nervous aphonia. (Czermak.)

recommended under diphtheria will be required. Strychnia in $\frac{1}{2}$ grain doses twice or thrice a day has proved serviceable in some cases. Astringent and stimulating gargles may be used simultaneously. Hysterical aphonia requires the treatment of hysteria. The treatment of organic aphonia will vary with its cause. If there be tubercular infiltration, we may apply a leech over the thyroid cartilage occasionally, or direct croton liniment to be rubbed in; the general treatment being that of phthisis. If there be follicular enlargement or ulceration, solution of nitrate of silver (gr. v. in 3 i.) may be applied within the lips of the glottis by means of a camel-hair brush fitted in a handle suitably



Fig. 70.

Large epithelial tumor arising from the inferior vocal cord, and occupying the aperture of the glottis. Symptoms, hoarseness, followed by aphonia. (Czermak.)



Fig. 71

Syphilitic excrescences on true vocal cords. (Condylomata of the larynx.) Symptoms, severe hoarseness. (Czermak.)

curved. Granular enlargements and chronic ulcerations may be removed by the repeated application of solid nitrate of silver. Malignant disease may be kept in check by the same means. Small pedunculated tumors may be removed by Dr. Gibb's laryngeal écraseur. Abscesses and œdema may be relieved by a suitably curved bistoury.

Acute œdema requires very prompt treatment. When practicable, the œdematous part may be freely pricked here and there with a curved and fine-pointed armed bistoury, so as to induce free bleeding. If this operation cannot safely be performed, a strong solution of nitrate of silver may be applied to the larynx and a few leeches to the throat; and ℥xxx. tincture of perchloride of iron may be given. If no relief be afforded, and suffocation impend, tracheotomy must be performed.

TRACHEITIS, OR CYNANCHE TRACHEALIS.—THE CROUP.

SYMPTOMS.—The disease generally begins with hoarseness, wheezing, and a short dry cough. Sometimes there is a rattling in the throat during sleep, and the child is often observed to raise the hand to the throat. After a time the breathing becomes difficult, the voice husky or absent, and the breath is drawn in with a sound as if passing through a constricted orifice or narrow tube, and, in speaking or coughing, it acquires a peculiar or shrill sound, similar to the crowing of a cock. The cough is dry; but at length a viscid matter is brought up, and flakes or tubes of false membrane, with efforts often so distressing as to threaten strangulation. The disease is accompanied by inflammatory fever, with hot skin and flushed face, and generally terminates fatally about the second or third day; the lips become blue, the pulse thready, and after much distress the patient becomes drowsy and comatose, and ultimately dies suffocated.

ANATOMICAL CHARACTERS.—Inflammation of the lining membrane of the trachea, often extending to the larynx and bronchi, and the formation of a false membrane which, in extreme cases, fills the trachea and bronchi. Large portions of this false membrane, casts of the tube, have been expelled during fits of coughing and vomiting.

CAUSES.—*Remote and Predisposing.* Age from three to fourteen; low and damp situations, inland, or on the sea-shore. *Exciting.* The common causes of inflammation. The disease is somewhat epidemic, and some suppose it to be contagious.

DIAGNOSIS.—By the peculiar breathing, speaking, and coughing above described. From *laryngismus stridulus*.—See that disease.

PROGNOSIS.—*Favorable.* Early and free expectoration, the breathing not much impeded, the voice little changed, the febrile symptoms moderate.—*Unfavorable.* Great anxiety and difficulty of breathing, with shrill whistling inspiration; livid face, and cold extremities.

TREATMENT.—*Indications.* I. To subdue inflammation. II. To obviate urgent symptoms.

I. The first indication is fulfilled by the free application of leeches to the larynx and trachea; followed by a warm bath and tartar-emetic in nauseating doses. The treatment may be commenced by an emetic of from

half a grain to a grain of tartar-emetic, according to the age. The bowels should also be freely opened.

Calomel should be combined with the tartar-emetic, and mercurial ointment be rubbed into the thighs or armpits, so as rapidly to affect the system, and prevent the further effusion of lymph. Mercury may be used with the more freedom in children, as they are not easily affected by it.

II. If the symptoms be urgent, the false membranes may sometimes be brought up by the operation of an emetic, and removed by the hand. If suffocation threaten, tracheotomy must be performed. As the inflammation quickly extends to the lower part of the trachea, or even into the bronchial tubes, the operation should not be delayed.

LARYNGISMUS STRIDULUS.—FALSE OR SPASMODIC CROUP.

SYNONYMS.—Crowing inspiration; child-crowing; spasmodic asthma of children; thymic asthma.

SYMPTOMS.—The principal feature of the disease is a remarkable crowing inspiration, unattended by cough, coming on suddenly, and often on first waking from sleep. For a short time the child makes ineffectual efforts to inspire air, and struggles violently, but at length the difficulty is overcome, and the breath is drawn in with a loud, crowing sound. If the impediment be less complete, the respiration is hurried and laborious, each inspiration being attended by the peculiar crowing sound; the face becomes livid, the eyes staring and suffused, convulsions supervene, the thumbs are clenched in the hands, the fingers and toes are flexed, and the joints of the wrist and ankle forcibly bent. In extreme cases, death takes place by asphyxia, or the little patient falls, pale and exhausted, into the nurse's lap.

PATHOLOGY.—Irritation reflected through the inferior or recurrent laryngeal nerve on the muscles of the larynx, in consequence of irritation of the gums, stomach, or bowels. A diseased condition of the bronchial and cervical glands, producing irritation of the pneumogastric nerve, or its recurrent laryngeal branches.

CAUSES.—*Predisposing.* Infancy; from birth to the age of three years; the scrofulous diathesis.—*Exciting.* Teething; intestinal irritation; worms; enlargement of the glands of the neck and chest.

DIAGNOSIS.—From *croup*, by the sudden accession and departure of the fits; by the free breathing in the intervals; by the absence of febrile or catarrhal symptoms; and (except in rare cases during the fit) of cough.

PROGNOSIS.—The disease generally terminates favorably. Fatal cases are rare.

TREATMENT.—*During the fit.* The patient should be placed in a warm bath, the face being exposed to a current of fresh air, and cold

water should be dashed over the chest and face. If suffocation be imminent, tracheotomy must be performed.—*During the intervals.* The treatment must depend on the existing causes of irritation. If the disease continues when these are removed, change of air, a suitable diet, and attention to the state of the bowels will generally effect a cure.

Spasmodic diseases of the larynx, with croupy respiration; and convulsive cough or loss of voice, are of frequent occurrence in females, and belong to the long list of anomalous hysteric affections. They must be treated in the same way as other hysterical symptoms.

DISEASES OF THE BRONCHIAL TUBES AND AIR-CELLS.

CATARRHUS	Catarrh.
CATARRHUS EPIDEMICUS	Influenza.
BRONCHITIS	Bronchitis.
ASTHMA	Asthma.
EMPHYSEMA	Emphysema.
PERTUSSIS	Whooping-cough.

CATARRHUS.—CATARRH.

Acute catarrh, commonly called “a cold,” is a febrile affection, complicated with inflammation of one or other of the mucous membranes. If confined to the mucous membrane of the eyes and nostrils, it is called *coryza*, or a *cold in the head*; if it extend to the bronchial tubes, it is termed *bronchitis*; if it attack the mucous membrane of the bladder, it becomes a *catarrhus vesicæ*. Sometimes the inflammation affects the mucous membrane of the alimentary canal, and is attended with sickness and diarrhœa, or both, assuming the form of gastritis, enteritis, or gastro-enteritis mucosa. Its essential characters, therefore, are increased secretion of mucus from the nose, fauces, bronchi, intestinal canal or bladder, with pyrexia.

SYMPTOMS.—Slight rigors followed by pyrexia; weight and pain in the head; oppression of the chest, and impeded respiration; sense of fulness and obstruction in the nose; repeated sneezing; watery inflamed eyes; cold shiverings, succeeded by transient flushes of heat; soreness of the fauces and tonsils; herpetic eruptions on the lips; cough; pains about the chest; rheumatic pains in the back, neck, and head. After an interval increased mucous secretion from the affected parts. The chronic form is known as common bronchitis.

DIAGNOSIS.—The absence of bronchial, pneumonic, and pleuritic symptoms.

CAUSES.—Cold, or wet and cold, applied to the body.

TREATMENT.—In most cases the best remedy for a cold is ten grains

of Dover's powder given at night, followed by a hot bath, or hot water to the feet, a basin of warm gruel, and a warm bed. By these means a profuse perspiration is excited, which effectually removes the febrile action. The Dover's powder may be followed next morning by a saline aperient. A drachm of spiritus chloroformi may be substituted for Dover's powder. A large draught of cold water, taken at bed-time, will often effectually remove a common cold. If the fever run high, the best remedy is tartarized antimony in nauseating doses and at short intervals, with cooling drinks and saline purgatives.

If there be much smarting and running at the eyes, relief may be obtained by holding the head over the steam of hot water, or bathing the eyes repeatedly with warm water.

CATARRHUS EPIDEMICUS.—INFLUENZA.

SYMPTOMS.—Those of a common cold in an exaggerated form, with sudden and extreme prostration, loss of energy, and depression of spirits. The febrile symptoms, which generally assume a remittent type, do not run high, nor is the pulse much increased in frequency. Sometimes the catarrhal symptoms are very slight, the disease being characterized by extreme debility without local symptoms.

TERMINATIONS AND COMPLICATIONS.—Pneumonia, tonsillitis, bronchitis, and pleurisy, are often intercurrent. Muscular and articular rheumatism; diarrhoea and dysentery; erysipelas; continued fever, are occasional sequences.

CAUSES.—*Predisposing.* The male sex; adult and especially old age; a former attack; low, damp situations.—*Exciting.* A peculiar condition of the atmosphere.

Laws of the Epidemic.—The influenza was epidemic in the years 1510 and 1557; in 1729, 1733, 1743, 1762, 1775, and 1782; in 1830, 1837, 1841, 1844, 1847, and 1851. It seems to have originated in the East, and after an uncertain period to have shown itself in the north of Europe, whence it spread westward till it reached England; and from England passed in a south-easterly direction to France, Spain, and Italy, and across the Atlantic to America. Its course is very similar to that of the Asiatic cholera, of which it has more than once proved the precursor. Australia has been visited in recent epidemics. The disease, in every epidemic, has attacked a very large proportion (estimated at three-fourths, four-fifths, and nine-tenths) of the population, as well as many of the domestic animals. The mortality occasioned by it is considerable. In a million inhabitants of the metropolis the registered deaths from influenza were 65 in 1844, 117 in 1841, 150 in 1851, 295 in 1848, and 572 in 1847. In a recent year the total deaths in the metropolis from this cause were 1253. Its latent period is believed to be from a few

hours to two or three weeks. It commonly remains in the same district or country from a month to six weeks.

DIAGNOSIS.—From *common catarrh*, by its greater prevalence, the suddenness of its attack, the extreme debility which attends and follows it, and by its occurring indifferently at all seasons of the year, and in all states of the atmosphere. From *ephemeral fever*, by the extreme prostration, and, in many cases, by the herpetic eruption on the lips.

In the epidemic of 1844-5, several cases of influenza assumed a well-marked remittent character, with exacerbations on alternate days, and the herpetic eruptions on the lips. (G.)

PROGNOSIS.—Rarely fatal to the young and robust, unless complicated with pneumonia; dangerous to the aged, to the feeble, and the intemperate, and to persons subject to asthma and consumption.

TREATMENT.—In mild cases, that of catarrh; in severe ones, and in aged persons, stimulants, combined with opiates, a nourishing diet, and liberal use of wine, and appropriate local treatment. In the treatment of local complications, the adynamic character which they assume in influenza must be borne in mind. As soon as the severe symptoms have passed away change of air is one of the best remedies.

BRONCHITIS.

VARIETIES. 1. Acute. 2. Chronic. 3. Plastic (Bronchial Polypi).

1. ACUTE BRONCHITIS.

SYMPTOMS.—Bronchitis often supervenes upon severe catarrh, the inflammatory affection of the mucous membranes spreading from the upper part of the respiratory tract into the lungs. The *general symptoms* are severe in proportion as the inflammation extends towards the air lobules. The skin is hot and dry, the pulse full and rapid; there is more or less urgent dyspnoea with wheezing inspiration, and a sense of great oppression referred to the epigastrium. The patient is exhausted by a dry wheezy cough, which often comes on in severe paroxysms; the head is hot and painful, the tongue coated, the urine scanty and high colored, and deposits lithates.

After a few days the cough becomes moister, and a clear viscid frothy mucus is expectorated. This gradually loses its adhesiveness, and becomes thick and purulent; free expectoration now sets in, affording much relief, the fever and dyspnoea subside, and the cough alone remains. At first it is so frequent that little continuous sleep can be obtained; in a few days the expectoration begins to diminish, the cough subsides, and the patient convalesces. The mucous membrane, however, recovers but slowly, and it often remains in a congested state, and liable,

on the least change of temperature, to renewed attacks of inflammation, which tend to become chronic.

When the inflammation spreads into the vesicular structure, and becomes diffused through both lungs, the symptoms are very urgent, the dyspnœa extreme, the face dusky and anxious.

The *local signs* of the disease are highly characteristic. The sitting posture is chosen to allow of the free expansion of the chest, the arms and head are firmly fixed to give effect to the action of the extraordinary muscles of inspiration; the chest is everywhere resonant; on applying the ear, the air is heard, during inspiration, to traverse the bronchial tubes with a sighing, wheezing, or whistling sound; and, during expiration, to pass back again with a prolonged sonorous rhonchus. These sounds are loudest about the roots of the lungs—*i. e.*, about the middle parts of the chest in front and behind. At the bases, apices, and sides the vesicular murmur may still be heard, but feebler than usual, and here and there obscured by the coarser morbid sounds, or its place is supplied by crepitation. The rhonchus and sibilus are often so loud and general that the vesicular murmur is nowhere heard.

While the inflammation prevails, the elasticity of the lungs is more or less impaired, and in some severe cases the air is imprisoned in the distended lobules by the inflamed and constricted smaller tubes. In this condition the dyspnœa is extreme; we hear dry, wheezing, and whistling sounds, but no vesicular murmur.

As soon as secretion begins, moist sounds are heard. If the inflammation have involved the finer air tubes and the vesicular structure, a fine mucous crepitation is heard over the whole of the back and sides of the chest; and in the larger tubes coarser crepitation or mucous râles, with more or less musical wheezing. During an attack of acute bronchitis, the ingress of air to an entire lobe of one of the lungs may be suddenly stopped. During a violent fit of coughing, the tenacious mucus brought together from the smaller tubes is drawn back into a large bronchus by the forcible inspiration which accompanies the convulsive cough, and becomes firmly impacted. The symptoms are sudden and extreme dyspnœa, or actual suffocation. No air is heard to enter that part of the lung to which the obstructed bronchial tube leads, but, since it is distended with imprisoned air, the corresponding part of the chest retains its natural resonance.

Acute bronchitis often occurs in children; its most severe and urgent form has received the name of suffocative catarrh, and is characterized by a sudden and copious secretion of mucus, extreme and urgent dyspnœa, and fine mucous crepitation in every part of the lungs.

2. CHRONIC BRONCHITIS.

SYMPTOMS.—This disease is the sequel of the acute form. In middle-aged or old persons it returns every winter with increased severity, and

reappears for several years in succession, in which case it is called winter cough. When the mucous membrane secretes freely, and the breathing is very difficult, the disease is called humoral asthma. The symptoms of this disease are habitual cough, shortness of breath, and copious mucous expectoration. After repeated attacks of the disease, the pulmonary tissue becomes weakened, and emphysema results, marked by increased dyspnœa, and a peculiar dusky hue of countenance. The sufferings of the patient are often increased by flatulence.

In advanced age there are drowsiness, extreme and increasing debility and coldness of the surface, and the patient is at length suffocated by the accumulated mucus, which he has no longer strength to expectorate.

Dilatation of the bronchial tubes frequently accompanies chronic bronchitis. The symptoms are bronchorrhœa, dyspnœa, unusual resonance of the chest, with tracheal or even amphoric breathing. Gurgling and pectoriloquy may also be heard if the dilatation be considerable. The excessive expectoration leads to wasting of the body.

MORBID ANATOMY.—Swelling and redness of the tracheal and bronchial mucous membrane, especially at the termination of the trachea, and in the first divisions of the bronchi. The air passages contain a large quantity of tenacious mucus, or muco-purulent fluid. Portions of the lungs are occasionally *collapsed*. Collapse may be diffused or scattered. Diffuse collapse may affect the whole lobe of a lung. When it is complete, the part has the color and consistence of fœtal lung, pale, and containing a little blood. The scattered form of collapse affects only single lobules or small aggregations of lobules, and usually those situated in the anterior edges of the lungs. The collapsed lobules form little depressions like cicatrices, usually of a dark color. Collapsed lung may be readily inflated, and is thus distinguished from consolidated lung. The mechanism of collapse is very simple. A plug of mucus is drawn by a forcible inspiration into a bronchial tube; the contraction of that portion of the lung to which the obstructed tube leads may dislodge the plug sufficiently to allow the passage of air in expiration; but on inspiration it is again drawn back. The plug thus acts as a valve, allowing of the egress, but preventing the ingress, of the air, until at last the obstructed lung is completely deprived of air. The chest being an air-tight cavity, collapse of one part of the lung must be complemented by dilatation (emphysema) of another, and thus one morbid condition generates another. *Emphysema* alone is the commonest result of long-standing bronchitis. *Dilatation of the bronchi* is another morbid condition often found in chronic bronchitis; the tubes may be uniformly enlarged for a distance, or they may present spindle-shaped, globular, or saccular dilatations here and there, and the dilated part of the tube may be very thin; but usually its walls are greatly hypertrophied. The dilatation is due to atrophy, or abscess of the lung-tissue in the neighborhood of the larger bronchi, the dilatation being complementary.

3. PLASTIC BRONCHITIS (BRONCHIAL POLYPI).

SYMPTOMS.—Plastic bronchitis is known by the expectoration of branched fibrinous casts moulded in bronchial tubes of the third or fourth diameter. Sometimes the casts are hollow and shreddy, but more usually they are solid and compact. The disease is always associated with hæmoptysis. It recurs after variable intervals. The physical signs are dulness almost as complete as in pneumonia, and absence of breath as well as voice-sounds, in the affected portion of the lung, by which the disease is distinguished from pneumonia.

PATHOLOGY.—Croupy, fibrinous exudations from the mucous membrane, the detachment of which occasionally leads to hæmorrhage and the formation of coagula, which may take the form of the tubes.

PROGNOSIS.—The disease is rarely fatal, but it is very obstinate.

DIAGNOSIS.—Bronchitis occupying the whole of both lungs, occurring in a young adult of either sex, and not speedily yielding to treatment, justifies a suspicion of miliary tubercles. Chronic bronchitis with bronchorrhœa and dilatation of the bronchi may, at first sight, be mistaken for phthisis. The bronchorrhœa accompanying dilated bronchi may cause emaciation, and give rise to tracheal breathing and pectoriloquy. But the history of the case, the nature of the expectoration, and the other physical signs, will furnish decisive evidence of the nature of the disease.

SEQUELÆ.—Emphysema, hypertrophy of the heart, and dropsy.

PROGNOSIS.—Generally favorable in the acute and chronic forms; guarded in bronchitis senilis.

CAUSES.—Exposure to cold, the rheumatic and gouty diatheses, heart and kidney diseases. In children, measles and whooping-cough.

TREATMENT.—Of *acute bronchitis*. In very acute attacks, occurring in persons previously in strong health, tartar-emetic in nauseating doses may be necessary; blisters, mustard poultices, or turpentine stupes, may be applied to the chest. In very severe cases leeching. The general treatment of bronchitis consists in the exhibition of expectorants, such as a combination of squill and senega. Free sweating and diuresis should be induced by appropriate medicines. When the expectoration is freely established, we may give squill or ipecacuanha in combination with the mineral acids. If the circulation be feeble, we may give a moderate amount of whiskey or brandy. If hypnotics be required, we must use henbane or chloral hydrate in combination with opium. Opium must be given cautiously, especially in the early stages of the acute disease.

In the *chronic form of bronchitis* the treatment must be nearly the same as in the milder form of the acute disease. Compound squill pill is an excellent remedy, and it may be combined with comp. ipecac. powder, or the extract of conium. When there is a considerable collection of mucus in the air tubes, with urgent dyspnoea, an emetic may be given

early in the morning, or twice in the week, with the greatest advantage. The body should be kept warm, and the chest may be protected by a full-sized emplastrum picis. The balsams, gum resins, and oleo-resins, such as myrrh, benzoin, tolu, ammoniacum, galbanum, copaiba, and turpentine, often do much good.

The *plastic form of bronchitis* is not very amenable to treatment. In otherwise healthy persons it gradually subsides. ℞. tincturæ ferri perchloridi, and the inhalation of the vapor of turpentine, are the remedies most likely to do good. As a prophylactic, the patient should never remain in a heated atmosphere. In the bronchitis of children, emetics are very serviceable by promoting expectoration.

In *old age*, when the debility is extreme, the appropriate remedy is a combination of stimulants and narcotics. A nourishing diet and a liberal allowance of wine are also required. When dropsical effusions supervene, diuretics and expectorants must be given in combination with stimulants. The body and extremities should be kept warm, and exposure to cold avoided. The rooms should be kept as nearly as possible of a uniform warm temperature night and day. On leaving the room during the winter, the mouth and nose should be lightly covered with a silk handkerchief or the fold of a woollen or fur garment. In many cases, exposure to cold air gives temporary relief, but the symptoms return with renewed severity when the circulation is restored by the warmth of the room.

ASTHMA.

DEFINITION.—Paroxysms of dyspnœa, with intervals of freedom.

VARIETIES.—1. Humoral. 2. Congestive. 3. Spasmodic. 4. Hay.
5. Hysterical.

1. HUMORAL ASTHMA.—Bronchorrhœa, or bronchial flux.—*Symptoms.* The attack is usually preceded by a sense of fulness at the pit of the stomach, lassitude, depression of spirits, drowsiness, and pain in the head; followed, on the approach of evening, by a sense of tightness across the breast, and dyspnœa, which continues to increase for some length of time. Both inspiration and expiration are performed slowly, and with a loud wheezing noise, and there is a dry cough. The face is either turgid and livid, or pale and contracted. At length the difficulty of breathing becomes so great that the patient, threatened with suffocation, leaves his bed, paces up and down the room, stands in a stooping posture, or sits with the body bent forward, the arms resting on the knees, the shoulders raised, the abdomen contracted, and all the muscles of respiration thrown into violent action; and, still finding no relief, seeks at the open window a supply of cold air. These symptoms usually continue till the approach of morning, when a copious expectoration of a thin frothy mucus comes on, the breathing becomes less laborious and more full, the patient speaks

and coughs with greater ease, and feeling every way relieved, falls asleep. The dyspnoea and tightness of the chest, with evening exacerbations, remain for some days. The attack often comes on about midnight.

Physical Signs.—Percussion-sound generally good. Sonorous and sibilant rhonchi at the commencement of the attack, followed by mucous râle and crepitation. Some wheezing and sibilus usually remain after the attack.

Morbid Anatomy.—More or less bronchitis, often extensive pulmonary adhesions; dilatation of the right heart. Emphysema is common in this, as in the other forms of asthma.

Causes.—*Predisposing.* Hereditary peculiarity, lax habit of body; long-continued dyspepsia; gout.—*Exciting.* Sudden change of temperature; disorders of the alimentary canal, especially flatulence; impalpable particles of hay, ipecacuanha, or other substances.

Diagnosis.—From other diseases affecting the respiration, by the distinct paroxysms with intervals of perfect freedom. From congestive and spasmodic asthma by the copious secretion which ends the fit.

Prognosis.—Asthmatic patients often attain to an advanced age, and the prognosis is favorable when there is no tendency to phthisis or organic disease of the heart.

Treatment.—I. *Immediate.* An emetic at the onset of attack, if the patient is strong enough to bear it. In vigorous persons full doses of tartar-emetic, of ipecacuanha, or of the lobelia inflata (℥ xv. to 3 i. of the æthereal tincture) may be given with great advantage. In the weak, stimulants are required, such as strong coffee, ammonia, or æther. These may be combined with opium in moderate doses. Heat applied to the extremities, or to the entire surface, by means of the warm or vapor bath, is extremely serviceable at the onset of the attack. When the fit has already lasted some time, and the expectoration is abundant, it may be encouraged by inhalations of conium.

II.—*Subsequent.* The exciting causes must be carefully avoided, the general health improved, and the digestive organs carefully regulated. The bowels to be kept free, but hypercatharsis avoided; liquids should be taken in moderation; the diet should be plain, the meals light; and acescent fruits, and such vegetables as occasion flatulence, be avoided. The internal remedies will vary with the state of the system. Astringent tonics are serviceable in most cases.

I have found alum, combined with ginger, very serviceable in removing the distressing flatulence which often precedes and accompanies the fit. Ten grains of the one, with five grains of the other, and three or four grains of rhubarb, may be given three or four times a day. I have also more than once met with spinal tenderness in the cervical and dorsal regions, and have used tartar-emetic ointment with much benefit. (G.)

2. CONGESTIVE ASTHMA.—Dry Catarrh. This, like the foregoing,

comes on in paroxysms of severe dyspnœa, but differs from it in the scanty expectoration that attends the cough and terminates the fit. The sputa are scanty, highly adhesive, filled with air bubbles, and speckled with round black or gray spots, and at the height of the fit, often tinged with blood. After a time they become more abundant and less tenacious, and the fit passes off with increased expectoration.—*Physical Signs.* Those belonging to a swollen state of the mucous membrane of the air tubes—viz., clear sound on percussion, indistinct respiratory murmur, with sibilant rhonchi, or a peculiar click, and, in limited portions of the chest, the mucous crepitation.—*Morbid Anatomy.* A deep red or violent color of the mucous membrane of the air tubes, with scanty mucous secretion.—*Causes.* Those of the humoral asthma. Valvular diseases of the heart.—*Prognosis.* Generally favorable, except when of long standing, or complicated with other functional or organic diseases.—*Treatment.* Nauseating expectorants, as tartar-emetic, squills, ipecacuanha, lobelia inflata, are indicated in this form of the disease, together with inhalations of steam, tar-vapor, ammonia, and conium. Dry cupping and counter-irritation to the chest may be beneficial. Smoking stramonium is sometimes found advantageous, as in spasmodic asthma. Strict attention must be paid to the general health, and the digestive organs; and the bowels must be kept free by aloetic purgatives.

3. SPASMODIC ASTHMA.—This term is applied to dyspnœa occurring in fits, unaccompanied by signs of congestion or inflammation of the bronchial tubes, and presumed to depend on spasm of the muscular fibres of the air tubes.—*Symptoms.* Those of humoral asthma; but that the fit comes on more suddenly, and terminates without expectoration.—*Physical Signs.* Sound on percussion less clear than usual, respiratory murmur very faint, and occasionally accompanied with slight wheezing or whistling. If the patient be desired to hold his breath for a few seconds, or to count till the air in the chest is exhausted, and then to inspire slowly and steadily, the air will be heard to enter as usual. The respiratory murmur soon becomes feeble again. *Causes.*—*Predisposing.* The same as in other spasmodic diseases; hereditary peculiarity; hysteria.—*Exciting.* Attacks of dyspepsia; extreme flatulence; irritation of the upper parts of the spinal cord; pressure of tumors on the pulmonary plexus or on the vagus.—*Prognosis.* Favorable in the absence of complications; dangerous when combined with other diseases of the lungs, or with those of the heart. It often causes pulmonary congestion and hæmorrhage, and induces emphysema, and dilatation and hypertrophy of the heart. *Treatment.*—I. When the fit has actually commenced, some relief may be afforded by counter-irritants to the chest, epigastrium, and extremities; by anti-spasmodics, as opium, æther, chloroform, belladonna, assafoetida, and valerian. Opium and æther in combination (tr. opii. ℥xv. to 3 ss., and æther 3 ss. to 3 i.) is a useful remedy in the fit. When the patient is aware of the approach of a fit, he may sometimes ward it off by an emetic,

by smoking stramonium or tobacco, or by the cold douche. The ascertained causes of the fit must be carefully avoided.

II. The diet should be light, wholesome, and easy of digestion; and all substances which encourage flatulence should be avoided. The state of the bowels must be carefully attended to. For the improvement of the general health, the shower-bath, or cold sponging, following by frictions of the chest every morning; and tonics. Where much flatulence is present, alum in combination with ginger may be given with advantage. If there be tenderness in any part of the spine, leeches may be applied, or the tartar-emetic ointment, or both.

When the spasm of the bronchial tubes is combined with congestion of the mucous membrane, or with increased secretion, depletion or counter-irritation must be employed with anti-spasmodic remedies.

4. HAY ASTHMA.—Hay fever.—*Symptoms*.—Those of catarrh or humoral asthma. *Causes*.—*Predisposing*.—Peculiarity of constitution. *Exciting*. The odor of hay, or that of a stable. In some cases fine powder floating in the air, especially that of ipecacuanha. *Treatment*.—That of humoral asthma during the paroxysm. In the interval, the careful avoidance of the exciting cause. Chloroform inhaled with due precaution is an excellent remedy in many cases.

5. HYSTERIC ASTHMA.—*Symptoms*.—This disease has its seat in the external muscles, and is closely allied to chorea and hysteria. It is characterized by extraordinary frequency of the respiration, with perfectly healthy sound of the chest and breathing; and a rapid pulse. Sometimes also it is a marked symptom of paralysis agitans, the muscles of respiration partaking of the agitation.

A remarkable case of spasmodic asthma in a female aged twenty-two, came under my notice several years ago. The fits, which were of variable duration, were characterized by extreme frequency of breathing, with comparatively little general disturbance of health. There was amenorrhœa, some tenderness of the upper part of the spine, and constipation. The disease was cured by purgatives carefully and perseveringly administered. No other remedy was applied. Hypercatharsis was invariably followed by a paroxysm. In a case of the same kind in which there were 140 respirations to 144 pulses, much benefit was derived from cold affusion. (G.)

EMPHYSEMA.

SYMPTOMS.—Permanent shortness of breath, increased to extreme dyspnoea by occasional exciting causes, such as exercise, flatulence, or a common cold; and in extreme cases by assuming the horizontal posture; with a dusky hue of countenance and cold extremities. Fits of orthopnoea, with violent palpitation and blueness of the face and lips, come on suddenly in the night, obliging the patient to sit up, and to open the doors

and windows of the room for air. The dyspnœa is attended by cough, with scanty expectoration, which varies in character, consisting in most cases of a thin mucus, mixed with small tenacious clots, and filled with air-bubbles. The expectoration is often increased by a supervening attack of bronchitis; and it becomes abundant towards the end of the fit. In cases of long standing the general aspect of the body undergoes a change; the face becomes pale, and of a dusky hue, the body grows thin; and the legs and abdomen swell.

PHYSICAL SIGNS.—Abdominal respiration; a prominent barrel-shaped tympanitic chest, in which the respiratory movements are greatly diminished, and the area of resonance everywhere increased, even to effacing the præcordial and hepatic dulness. Displacement of the heart downwards and to the right so that the apex beat approaches the ensiform cartilage; great hypertrophy of the right heart; indistinct respiratory murmur, and prolonged inspiratory and expiratory sounds; and, in some cases, a dry crepitation. In marked cases, the chest bulges in all directions; but when the emphysema is confined to one lung or to a part of one lung, it is irregularly enlarged. It is usually associated with bronchitis.

MORBID ANATOMY.—Dilatation of the lungs; the anterior margins almost meet and conceal the pericardium; the heart and diaphragm are depressed; usually there are extensive old adhesions between the pleuræ, and the cartilaginous ribs are ossified. The lungs are pale, dry, and bloodless, and have a soft woolly feel; their cells are enlarged; and the distended lobules are often ruptured and communicate with each other, forming little bladders which collapse on the slightest touch of the scalpel. These are usually found on the thin anterior margins of the lungs. Displacement and hypertrophy with dilatation of the right side of the heart. General venous congestion.

SEQUELÆ.—The permanently distended condition of the air-cells, opposing as it does the entrance of a proper quantity of blood into the lungs, ultimately produces hypertrophy of the right side of the heart; fatty degeneration of the liver and kidneys; anasarca and ascites.

DIAGNOSIS.—From asthma, by the permanent shortness of breath. But as emphysema is common in chronic bronchitis, and supervenes after repeated attacks of all the forms of asthma, only spasmodic asthma can be thus distinguished.

CAUSES.—Repeated attacks of bronchitis, impairing the contractility and elasticity of the air-cells. Pleuritic adhesions, preventing the contraction of the lungs. Old age, causing degeneracy of the lung-tissue.

PROGNOSIS.—The disease is rarely fatal in itself, but ultimately leads to dropsy.

TREATMENT.—I. *During the paroxysms.*—The fits may be greatly relieved by dry cupping and diffusible stimulants. Half a drachm to a drachm each of æther and compound spirit of ammonia may be adminis-

tered at the onset. The shoulders should be well raised, the doors and windows thrown open, and the body, especially the lower extremities, kept warm. In extreme cases, cupping between the shoulders, or the cautious abstraction of blood from the arm by a small orifice, may be necessary. When the patient has reason to expect an attack, an emetic, by emptying the stomach, and removing flatulence, may prevent it; and similar relief is sometimes afforded by the free action of a calomel and colocynth pill, followed by a black draught.

II. *During the intervals.*—This disease does not admit of cure. The treatment consists in attending to the complications which may exist with it, and in a few simple precautions, such as the avoidance of colds by warm clothing and dry feet, the daily use of cold sponging or the shower-bath, regular and moderate meals, aloetic aperients, and the astringent chalybeates.

Emphysematous patients suffer most in close, moist weather, when the function of the skin is impeded; and least when the weather is open and the air dry and bracing.

PERTUSSIS.—WHOOPIING-COUGH.

SYNONYMS.—Tussis convulsiva, chin-cough, kinkhost.

DEFINITION.—An infectious malady, characterized by a peculiar cough occurring in fits terminated by vomiting.

SYMPTOMS.—The disease generally begins as a common cold, and it is not till after two or three weeks, or, in rare cases, as many months, when the febrile symptoms have somewhat abated, that the characteristic symptoms show themselves. The cough now comes on in distinct fits, consisting in a series of violent and convulsive expirations with congestion of the face, and threatening of instant suffocation, and sometimes with involuntary discharge of the urine and fæces, followed by a sudden, long-drawn inspiration, accompanied by a peculiar whoop which gives the disease its name. The convulsive coughing is renewed, and continues as before, till a quantity of mucus, thrown up from the lungs, issues from the mouth and nostrils, perhaps mixed with blood; or till the contents of the stomach are discharged by vomiting. After the fit the patient has an interval of perfect freedom from cough, and often expresses a desire for food; but when the attack has been severe, it is succeeded by much fatigue, hurried respiration, and general languor and debility. Children evince great fear of the fits, and will run to their nurses or mothers for relief. Adults are seized very suddenly, and the paroxysms are usually very severe. The disease generally attains its greatest severity at the end of the fourth or fifth week, after which the paroxysms become less severe and at length, after a further variable period of from two weeks to four months, entirely cease. In some instances, however, the disease is protracted for several months, and even for more than a year.

SEQUELÆ AND COMPLICATIONS.—Bronchitis, with collapse of the lung; Pneumonia; Pleuritis; Gastritis; Phrenitis; Convulsions; Apoplexy; Epilepsy.

MORBID ANATOMY.—Inflammation of the bronchial tubes, with large accumulation of mucus in the air-passages. Collapsed spots, diffused or scattered, with complementary emphysema. Pneumonia. Inflamed bronchial glands. Inflammation of the mucous membrane of the stomach and intestines, with enlargement of Peyer's and Brunner's glands. In other words, an inflamed condition of the parts supplied by the eighth pair of nerves, which latter have been observed to be red.

CAUSES.—*Predisposing.* Childhood. Adults, however, are not exempt; and the disease may attack persons of seventy and eighty years of age. The seasons of spring and autumn.—*Exciting.* A specific poison acting on the eighth pair of nerves.

DIAGNOSIS.—In the early stage, by the abundant sputa, the occasional vomiting, the violence of the paroxysms, and the perfect freedom in the intervals. When fully established, the convulsive cough, peculiar whoop, and characteristic termination above described.

PROGNOSIS.—*Favorable.* In proportion as the fits and bronchial inflammation are mild.—*Unfavorable.* A severe form of the disease in children under two years of age, and especially while suckling or teething; and in children born of phthisical or asthmatic parents. Complication with diffuse bronchitis.

LAWS OF INFECTION.—Rarely attacks the same person twice. May coexist with small-pox, measles, and other febrile disorders; but is sometimes cured on their appearance. Latent period, five or six days.

MORTALITY.—The deaths in London during 15 years, in a million persons of all ages, fluctuated between 582 and 1217; average 857. Two diseases only (Typhus Fever and Scarlatina) are more fatal.

TREATMENT.—1. In the early stage tartarated antimony in doses sufficiently large to produce nausea. From a twelfth to a sixth of a grain, according to the age of the patient, may be given at short intervals. Occasional gentle aperients, and a bland farinaceous diet should be prescribed; and the patient must be guarded from cold, and kept in a pure, warm air. When there is extreme restlessness, and great distress in the fits, the tartar-emetic may be combined with opium. Half an ounce of antimonial wine, with a drachm of laudanum, and distilled water in sufficient quantity to make a mixture of $\frac{3}{4}$ iss., is a very good combination. The dose for a child of ten years old, may be a teaspoonful twice or thrice daily. When the mucus is brought up with difficulty, an emetic should be given once, twice, or thrice a week. A warm bath should be given occasionally.

2. If there be signs of inflammation in the lungs, a few leeches may be applied over the upper part of the sternum, followed by a poultice. Linseed and mustard poultices, stimulating embrocations, or even blisters

to the chest, may be used with advantage. If there be determination of blood to the head, leeches to the temple and cold applications. If the child be too weak to bear antimony, give ipecacuanha or squills in combination with spirit of chloroform and belladonna. Expectorants combined with mineral acids often do much good. When the severity of the disease has passed away, change of air is the best restorative; and it is sometimes of the greatest service in the height of the disorder. Debility must be treated by tonics, especially the preparations of steel. When the symptoms of bronchitis, or broncho-pneumonia have been relieved, bromide of potassium (gr. iij. to v.), with conium (succii conii 3 ss. to 3 ij.), is very serviceable in relieving the nervous irritation and spasm. Belladonna and henbane are also successfully employed in combination with expectorants.

DISEASES OF THE SUBSTANCE OF THE LUNGS.

PNEUMONIA	Inflammation of the Lungs.
GANGRÆNA PULMONUM .	Gangrene of the Lungs.
HÆMOPTYSIS	Spitting of Blood.
PHTHISIS PULMONALIS .	Pulmonary Consumption.

PNEUMONIA.—INFLAMMATION OF THE SUBSTANCE OF THE LUNGS.

SYNONYMS.—Peripneumonia. Pulmonitis. Pneumonitis.

SYMPTOMS.—*General.* The disease sometimes sets in with rigors, followed by pyrexia; at others the local symptoms are the first to show themselves. There is high fever, with increased heat of surface, especially on the chest; flushed face; injection of the eyes; headache; frequent, quick, and compressible pulse; thirst, furred tongue; anorexia; and great debility. The chest symptoms are a diffused, dull pain, deep-seated, rarely acute, unless the disease involve the pleura; a short, dry cough, at first with scanty mucous expectoration, but after the lapse of one or two days, with a rusty colored, very adhesive sputum; the respiration is frequent and short, rising from 18 to 30 and upwards. In some cases (pure pneumonia, as distinguished from broncho-pneumonia) there is a complete absence of expectoration.

In favorable cases the symptoms gradually subside, and the sputa become less viscid and more abundant and of a purulent or mucopurulent character, and convalescence is effected in ten days or a fortnight. In unfavorable cases the symptoms increase on the third or fourth day; the breathing becomes more frequent; the sputa of a deeper hue, more viscid, and often streaked with blood; the pulse increases in frequency and feebleness; the tongue dry and brown; the skin hot and pungent; the debility extreme; and delirium and coma come on, with all the symp-

toms of the typhous state. In the last stage, the expectoration ceases; the dyspnœa increases, the pulse is small and fluttering; the face pale; the lips livid; the skin covered with a clammy sweat, there is an increasing rattle in the throat; and at length the patient dies exhausted, asphyxiated, or comatose. Fœtid odor of the breath, and putrid sanious expectoration, announce the occurrence of gangrene.

Local Symptoms.—Dulness over the inflamed lung, unless it lie far from the surface; very fine crepitation; bronchial breathing and bronchophony, with increased respiration in the unaffected portions. Fine crepitation is the first indication of the congestive stage. It supersedes the vesicular murmur; continues to be heard for a day or so, and then gradually decreases till it is inaudible; and it is now that the bronchial breathing and bronchophony are most marked. If the inflammation subsides, a little mucous crepitation begins to be heard, and soon increases in intensity and extent, until at last it becomes general, the bronchial breathing and bronchophony meanwhile decreasing, and at last becoming extinct. The inflamed lung is again permeated by air, and the expectoration of viscid, rusty-colored sputum is re-established. As the inflammation subsides, the moist sounds give place to the natural vesicular murmur, showing that the lung is being restored to its normal condition. Resonance on percussion is, of course, established, *pari passu*, with the recovery of the lung. If, however, resolution do not take place, the dulness, tracheal breathing, and bronchophony become very marked and persistent, and there is complete absence of vocal fremitus. But if the whole of one lung become consolidated, tracheal breathing and bronchophony are absent, because no air can be drawn into it. If portions of the hepatized lung suppurate, and the abscess be discharged, the physical signs of a cavity—viz., pectoriloquy, amphoric breathing, and gurgling (see Phthisis) will be present. The parts most commonly affected are the lower lobes of one or both lungs; and the local symptoms are most marked at the sides and back of the chest.

VARIETIES and COMPLICATIONS.—Pneumonia is a frequent concomitant of the latter stages of continued fevers, of erysipelas, and pyæmia; but is very liable to be overlooked. Great heat of the chest, unusual dyspnœa, and sudden aggravation of symptoms, should lead us to suspect this complication. The physical signs are the same as in idiopathic pneumonia. It often results in the deposition of miliary tubercle in the lung, constituting *tubercular pneumonia*. It attacks patients in the advanced stage of phthisis: and is a frequent concomitant of bronchitis. Its most common combination is with pleurisy (pleuro-pneumonia).

MORBID ANATOMY.—In the first stage, *sanguineous congestion*. The lungs are gorged with blood, but still float in water. In the second they are in a state of *red hepatization*, and sink in water. Examined with a pocket lens, the broken surface of the solidified lung has a fine granular appearance. The third stage is that of *yellow hepatization* or *diffused sup-*

puration. The lung tissue is soft and rotten, and a depression made with the finger soon fills with purulent fluid.

CAUSES.—*Remote and predisposing.* Sanguineous temperament, and plethoric habit, winter and spring seasons, a peculiar state of the atmosphere. Great debility and privation in the poor of large towns.—*Exciting.* The common causes of inflammation; vicissitudes of temperature, violent exercise; congestion occurring from common causes; or in the course of various febrile diseases; tubercular deposits; heart disease.

DIAGNOSIS.—The adhesive, rusty-colored sputa, the minute crepitation, the short, quick, silent breathing, with the physical signs just described, characterize pneumonia. The history of the case distinguishes idiopathic pneumonia from typhus fever with chest complication.

PROGNOSIS.—*Favorable.* An early and copious mucous expectoration, the small crepitation changing to distinct mucous râle; later in the disease, an abundant muco-purulent expectoration, with return of resonance and respiratory murmur; warm, equable, and free diaphoresis; diarrhœa; diminished frequency of respiration (an extremely favorable symptom); the absence of complication; the disease of limited extent.—*Unfavorable.* Violent fever with delirium, or typhous symptoms; no expectoration, or the expectorated matter tinged with blood of a dark color or black; sudden sensation of pain, followed by change of countenance, and a sinking or irregularity of the pulse; increasing frequency of respiration; a previously broken constitution; the disease extending to the whole lung or to both lungs; occurring in very young children, in the weak, or the aged.

TREATMENT.—Will vary with the stage of the disease. *During the first or congestive stage,* and in plethoric and vigorous subjects, and where the consolidation is extensive, leeches may be applied to the chest, followed by a linseed poultice, and a brisk aperient. Half a grain of tartar-emetic, with two of calomel, may be given every one or two hours, and mercurial ointment should meanwhile be rubbed into the arm-pits and groins until the gums are affected. In slighter cases, the application of a black blister over the dull portion of the chest wall, and the continued use of hot linseed poultices. A grain of opium, with one or two grains of calomel, every four or six hours, and half an ounce of acetate or citrate of ammonia every three hours, is a more appropriate treatment, and may be continued in the *second stage*, or that of hepatization. If the pulse should indicate failure of strength, ammonia, and brandy, or whiskey, will be needed. In the *third stage*, or that of suppuration or gangrene, plenty of nourishing food, wine, opium and astringent tonics are required.

In chronic pneumonia following the acute form, a course of mercury so as slightly to affect the system, counter-irritation, iodide of potassium with decoction of bark, with change of air, regular exercise, and temperate diet, may be resorted to. The patient must be closely watched, and the chest examined from time to time.

GANGRÆNA PULMONUM.—GANGRENE OF THE LUNGS.

SYMPTOMS.—A muddy anæmic complexion; fœtid breath; extreme prostration; a frequent, feeble pulse; expectoration of dingy-green sputa, mixed with blood, and of a peculiarly offensive odor; mucous râles and gurgling; marked typhous symptoms; and death from exhaustion.

CAUSE.—Pneumonia.

DIAGNOSIS.—The pre-existence of inflammation, and the peculiar color and offensive odor of the sputa.

PROGNOSIS.—Highly unfavorable, especially when the disease involves a large portion of the lungs. About an eighth of the cases terminate favorably.

TREATMENT.—A liberal allowance of wine or spirits, and a nutritious diet. The chlorine gargle and mixture as recommended in Scarlatina. Inhalations of tar-water. Quinine wine with the mineral acids.

HÆMOPTYSIS.—SPITTING OF BLOOD.

SYMPTOMS.—*General.* Spitting of blood is often preceded by a sense of weight and oppression in the chest, or of uneasiness in some one spot, with slight febrile symptoms, a frequent, sharp, and compressible pulse, some difficulty of breathing, and a dry, tickling cough. In some cases the mouth constantly fills with blood, without cough or irritation of the throat; but in other cases the blood is brought up alone, or mixed with mucus, after long fits of coughing. The patient usually complains of a salt taste in the mouth.

Local.—In some cases the chest affords the natural sound on percussion, and there is slight mucous râle, in others there is dulness over a limited spot, surrounded by fine crepitation. In the first class, the hæmorrhage is from the bronchial tubes (bronchial hæmorrhage); in the second, blood is effused into the substance of the lungs (pulmonary apoplexy). In a third class of cases the spitting of blood occurs as a symptom of advanced phthisis.

CAUSES.—*Predisposing.* A certain age—from the period of puberty to the forty-fifth year; sanguineous temperament; plethora; narrow conformation of the chest; previous attacks of the same disease.—*Exciting.* Excessive heat; violent exercise; the lifting of heavy weights; excessive exertion of the lungs in speaking, singing, etc.; external violence.

The most common cause of hæmoptysis is the existence of tubercular deposit in the lungs, the hæmoptysis in some cases preceding, in others following, the deposit. The next in point of frequency is vicarious hæmoptysis, the consequence of amenorrhœa. Less frequent still is hæmoptysis dependent on diseases of the heart, or rupture of an aneurism. Least frequent of all is hæmorrhage caused by plastic bronchitis. Hæ-

moptysis may occur in congestion of the lungs, however produced, as in pneumonia; in the fit of congestive asthma; and with hæmorrhage from other organs, as in purpura.

DIAGNOSIS.—The blood is brought up by coughing, in small quantities, or mouthfuls at a time, of a florid red color, preceded by, or mixed with, a little frothy mucus. An abundant discharge of *florid* blood leads to the inference that the hæmorrhage comes from the lungs, or from a ruptured artery communicating with the air passages.

From *hæmatemesis*.—The blood thrown up in hæmatemesis is usually in much larger quantity, of a dark color, more grumous, mixed with food and usually without cough. From *hæmorrhage from the nose, fauces or gums*.—By the negative result of a careful examination of those parts, and the history of the case.

PROGNOSIS.—The prognosis is generally favorable, when the hæmorrhage is not sudden and abundant; and when it takes the place of the menses in amenorrhœa. In most cases, in both sexes, its occurrence justifies a suspicion of the existence of tubercle: and, in their ascertained absence, of disease of the heart.

TREATMENT.—*Indications*. I. To remove congestion. II. To keep the circulation quiet. III. To contract the relaxed vessels.

I. The first indication is best fulfilled by the abstraction of blood. The circumstances which justify the adoption of this remedy are plethora, a full, frequent, and jerking pulse, great dyspnœa, a flushed countenance, and abundant hæmorrhage. When the countenance and skin are pale, the pulse small and weak, and the respiration little affected, bleeding is not required. It is also contra-indicated in phthisical hæmoptysis. Sufficient relief may generally be obtained by leeches or cupping.

II. Low diet, perfect repose, fresh cool air, cold liquids, or ice held in the mouth, with gentle aperients, fulfil the second indication. The head of the patient should be raised, and he should avoid talking. If there be still some febrile action, tartar-emeti, in doses of one-eighth to one-fourth of a grain, every three or four hours.

III. After congestion or febrile symptoms have been removed, or in cases where there has been from the first no congestion or fever, the third indication will be fulfilled by remedies belonging to the class of astringents. (Form. 157.) Digitalis, veratrum viride, and gallic acid are serviceable remedies. (Form. 194, 193, 158.)

PHTHISIS PULMONALIS.—PULMONARY CONSUMPTION.

DEFINITION.—Tubercular deposit in the lungs, giving rise, sooner or later, to suppuration and hectic fever.

SYMPTOMS.—*General*. The disease usually begins with a short dry cough, on first rising in the morning, so slight as to become habitual be-

fore it excites attention. It is sometimes accompanied by slight dyspnoea, increased on exertion, and the patient generally loses flesh, is soon fatigued, and easily thrown into a perspiration; or he complains of unusual chilliness. Slight dyspepsia, diarrhoea, frontal headache, and a small, frequent, quick pulse, are also among the early symptoms; and, on inquiry, we often learn that the patient formerly spat blood.

These early symptoms are often disregarded, or misinterpreted; so that the disease appears to begin suddenly with profuse hæmorrhage from the lungs, with pneumonia, or bronchitis.

When the disease sets in in either of these ways, it sometimes destroys life in three or four weeks (*Acute Phthisis*). But in the great majority of cases it is chronic; and after the symptoms above described have continued for several weeks, months, or even years, in consequence of a cold, or some trivial exciting cause, the cough becomes more constant and troublesome, and is attended by expectoration, at first of a frothy mucus, afterwards of a more viscid and opaque sputum, often mixed with small round particles of tubercular matter, with pus, or with streaks of blood; or well-marked hæmoptysis occurs. The dyspnoea increases, there are shooting pains in the chest, or superficial tenderness, and in many cases a peculiar hoarseness of the voice.

As the disease advances, the cough and dyspnoea become more urgent, the expectoration more abundant, the emaciation and weakness more considerable, the pulse more frequent; there are chills at noon or in the afternoon; the face flushes towards evening; the palms of the hands and the soles of the feet are burning hot; in a word, hectic fever sets in, followed towards morning by profuse perspiration. The urine is high-colored, and deposits a pink sediment. The tongue, from being white, is now preternaturally clean and red, and the appetite often improves. Profuse diarrhoea, sometimes tinged with blood, colliquative sweats, extreme emaciation, shedding of the hair, œdema of the legs, aphthæ in the mouth and throat, hectic fever in its most marked form, and a very feeble, rapid, and often irregular pulse, usher in the fatal termination. In some cases, the patient dies suffocated, having escaped many of the most distressing symptoms. In other instances delirium and other indications of tubercular meningitis, precede the fatal event by some weeks. The appetite and spirits often remain good to the last; and the patient flatters himself with the hopes of speedy recovery, and forms distant projects of interest or amusement.

Local Symptoms.—In the incipient stage, before suppuration sets in, dulness on percussion over the clavicles and in the supra and infra claviclar regions, but generally greater on the right than on the left side. Similar dulness between the scapulæ. The upper part of the chest, in some instances, is obviously contracted, the clavicles being very prominent, the supra-clavicular regions deeply hollowed, the anterior and upper part of the chest flattened, and the shoulders thrust forward.

The respiratory movements are diminished. The stethoscopic indications are a roughness in the respiratory murmur; a prolonged expiratory sound; bronchial respiration and bronchophony, heard more distinctly on one side, and most to be depended on as a sign of incipient phthisis when heard towards the point of the shoulder; mucous crepitation; increased resonance of the voice; in some cases, extremely indistinct respiratory murmur; puerile respiration in the sound parts of the lungs. The heart sounds are abnormally distinct over the whole chest.

In *advanced* phthisis, one or more of the following physical signs are superadded to the foregoing:—coarse crepitation; more decided bubbling sound or click, which is most distinctly heard when the patient coughs or takes a full inspiration; cavernous rhonchus; cavernous respiration; pectoriloquy; amphoric resonance; metallic tinkling; distinct gurgling when the patient coughs; and, in rare cases, equally distinct sound of fluid in motion on succussion; the cracked-pot sound, on sharp percussion. The situation in which these sounds occur, and the limited space which they occupy, will generally serve to distinguish phthisis from other conditions of lung productive of the same or similar sounds.

The sputa are at first frothy, as in bronchitis; then mucous, then flocculent, resembling “irregular balls of flock or wool, of a yellow or greenish color, sinking and breaking down in water;” and lastly purulent, often sinking in water, and sometimes containing particles of clotted matter, like softened cheese. The sputa are often streaked or spotted with blood; sometimes they are discharged in the masses, designated “nummular sputa,” which the patient compares to “oysters.” In rare instances, distinct portions of pulmonary tissue are spit up, having under the microscope the appearance depicted in Fig. 52, Vol. I., p. 186, and still less frequently cretaceous or earthy matter. The frothy and mucous expectoration attend the early stages of phthisis, the flocculent and purulent the more advanced. Hæmoptysis may occur both in the early and advanced stages.

MORBID ANATOMY.—Tubercular matter, as miliary tubercles or granulations scattered through the lungs; or as opaque yellowish white or cheesy masses infiltrated into their texture. Cavities of various size and shape, sometimes found in every part of the lung, but generally confined to the upper lobes, larger and more numerous in the right than on the left side. The liver enlarged, and changed in appearance and consistence (the fatty or nutmeg liver). Tubercular deposits in the various organs of the body. Tubercular ulcerations of the larynx, trachea, and intestines (see Partial Enteritis). Of Louis' cases ulceration of the larynx occurred in $\frac{1}{3}$, of the trachea in $\frac{2}{3}$, of the intestines in $\frac{1}{3}$. Tubercle is a molecular and cellular formation, the constituent cells being imperfectly developed; many are little more than mere nuclei, and the largest are rather smaller than pus corpuscles. The vessels of the *pia mater* in tubercular meningitis (Fig. 72) present at intervals spindle-shaped (A)

swellings which cause obstruction of their channels. These tubercles are formed partly by the separation of molecular fibrin from the blood, and partly by the growth of the corpuscles of the outer connecting coat of the vessel (B); the exudation and morbid growth going on simultaneously as the result of inflammatory irritation. This process is readily studied in the easily isolated vessels of the brain. It is identical with that which occurs in the formation of tubercles in the lungs.

Tubercle, like pus, may be developed from the corpuscles of the connective tissue in any part of the body. As long as the cells remain un-



Fig. 72.

altered, the tubercle retains its gray semi-transparent appearance, but sooner or later they become disintegrated into fatty granular débris, and are changed into a yellowish cheesy mass. Fig. 73 shows the whole succession of transitions from (a) the connective tissue corpuscles, up to the production, by the division and multiplication of their nuclei, of the tubercle corpuscles (b). Those in the centre of the tubercular mass are undergoing disintegration into cheesy matter (Virchow).

COMPLICATIONS.—Bronchitis, pneumonia, and pleurisy, followed by

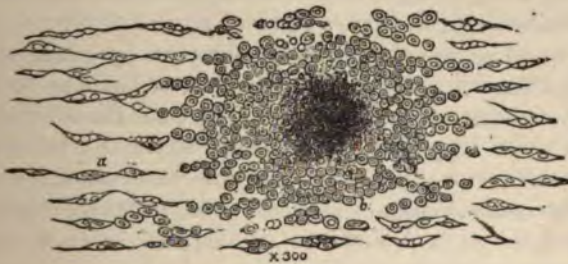


Fig. 73.

adhesion, or by pneumothorax. Ulceration of the larynx and trachea. Enlargement of the liver; peritonitis; œdema of the ankles, anasarca, ascites; ulceration of the intestines; fistula in ano.

DURATION.—Average about two years. In acute cases, from a few months to one or two years. In very acute cases, three weeks or a

month. In chronic cases, death often takes place after the lapse of years, and after repeated attacks of hæmoptysis.

CAUSES.—Predisposing. Hereditary predisposition (in about one-fourth the cases); the scrofulous diathesis; adult age; the male sex. A particular formation of the body, marked by a long neck, prominent shoulders, narrow or deformed chest, long slender fingers, with filbert nails, regular, white teeth, and gums with a deep red margin; thin upper lip; a fine clear skin, delicate complexion, and fine hair. Dr. Buchanan's recent laborious researches have elicited the important and comprehensive fact that "*wetness of the soil is a cause of phthisis to the population living upon it.*"—*Exciting.* Foregone attacks of pneumonia, catarrh, asthma, scrofula, syphilis, variola, rubeola. The dust to which needle-pointers, stone-cutters, pearl-button makers, millers, etc., are exposed. Irritating fumes.

MORTALITY.—The disease is fatal (but often after several attacks) in the vast majority of cases. It destroys about a ninth part of the English population, and about a fifth of those who attain the adult age. In the metropolis it causes about a seventh of the deaths at all ages, and about a fourth of those of adults. The old bills of mortality show a like proportion of deaths among adults.

DIAGNOSIS.—The symptoms and physical signs taken together render the diagnosis of confirmed phthisis easy, but it is often difficult in the incipient stage, in cases of extensive miliary deposit without suppuration, and when complicated with other chest affections. The following observations may facilitate the diagnosis. The first onset of phthisis is marked by very slight and very variable symptoms, such as debility; debility and slight emaciation; perspiration on slight exertion; dyspepsia; diarrhoea; slight hæmoptysis; hacking cough, with scanty mucous expectoration in the morning; palpitation. A few well-directed inquiries will generally bring to light some additional symptom. In all obscure cases, the character of the pulse deserves special attention, as it affords indications quite as valuable as those obtained by examination of the chest. When the disease is advanced, it is most liable to be confounded with bronchorrhoea, with dilated bronchi (see Bronchitis), and with suppuration of the lung after pneumonia. From the latter it is distinguished by the previous history, and by the character of the sputum.

The *Pulse* in some cases excites suspicion, in others confirms it, by 1, increased frequency; 2, diminished volume; 3, increased quickness or sharpness; or 4, by all three combined.

1. In the great majority of instances it exceeds the usual average, while in five cases out of six the number of the pulse exceeds the highest number (92) observed in *apparently* healthy males of the same mean age. Sometimes this increased frequency of the pulse accompanies the first feelings of indisposition, and continues throughout the disease. I have known it as high as 140, where debility was the only marked symptom. On the

other hand, cases do occur, though very rarely, in which the pulse is even less frequent than the average in health. [Jan., 1853.—P. D., aged 34, a policeman. When 24 years old he had an attack of pneumonia (?), which confined him to bed for six weeks. During the attack he spat half a pint of blood mixed with yellow sputa, for several days in succession. When 26 years of age he had an attack of pleurisy, for which he was bled. During the two years that he has been in the police force he has always had a cough, and when aged 33 again spat a little blood. Spits large quantities of yellow sputa, but no blood at present. There is dullness on percussion above and below both clavicles, with cavernous respiration, increased expiratory murmur and pectoriloquy above the right clavicle; increased expiratory murmur and slight crepitus about the left clavicle. Pulse, standing, 64. He is still able to follow his employment. August, 1853.—External appearance and symptoms little changed, but the pulse now above 100, in the same posture. June, 1858.—Still in delicate health, but following his employment as a beadle.]—2. The diminished volume of the pulse is an almost constant character, and is present even in such exceptional cases as the above.—3. The quickness of the pulse—that is to say, the promptitude with which each separate pulse rises beneath the finger—is also even more constant than the increased frequency, and may exist with a pulse of 70. The pulse of health is exactly the reverse of this, rising slowly, and, as it were, deliberately, beneath the finger; so also is the infrequent pulse of mere debility. To quickness is superadded smallness of pulse in phthisis, whilst the pulse in health is of moderate fulness.—4. The combination of the three characters of pulse—the frequency, the smallness, and the quickness—should always lead to an examination of the chest; but the small quick pulse alone is sufficient ground of suspicion. These observations apply only to men, as the characters here pointed out form a striking contrast to those of the male pulse both in health and disease: while, on the contrary, the pulse of the female, even in health, possesses these three characters in a marked degree, and assumes them in most functional and in many organic diseases. A small, quick, and frequent pulse is, therefore, less indicative of consumption in women than in men. The slight effect produced by a change from the erect to the sitting posture will also assist the diagnosis in the male, by distinguishing the debility of phthisis from simple debility due to other causes. Whenever, then, a man presents himself for advice complaining of debility, or of other obscure symptoms of phthisis, or even of symptoms proper to functional diseases of other organs, and is at the same time obviously free from acute disease, the pulse should be examined, and if, after allowing the patient's agitation to subside, it is either very small and frequent, or very small and quick, or if it combine the characters of increased frequency, smallness, and quickness, the chest should be examined, and in by far the majority of cases the physical signs will justify

the suspicion raised by the pulse. In examining persons offering themselves for assurance, the state of the pulse should be particularly attended to. It may be well to observe that, in consequence of its quickness (the promptitude with which each beat is performed) the pulse usually seems much less frequent than it is. It should, therefore, be always counted by the watch. (G.)

Headache.—A dull, persistent pain in the forehead and over the eyes have often led me to examine the chest, and in most instances with the result of confirming my suspicions. (G.)

Palpitation.—This too, may be the very first symptom to engage the patient's attention. (G.)

PROGNOSIS.—*Unfavorable*, as to the ultimate event, but guarded as to that of an existing attack, for the patient may survive three, four, or more severe attacks. An existing attack is likely to terminate fatally when there is a high degree of hectic; great frequency of pulse and respiration; much emaciation and debility; a morbidly-clean or fiery red tongue; fixed pain in the chest; colliquative sweats or diarrhoea; profuse purulent expectoration; œdema of the legs; aphthæ; and stethoscopic indications of extensive and advanced disease, or of fresh pleurisy.

There is a better prospect when the disease is limited in extent, and not traceable to hereditary predisposition; when there is little loss of strength and flesh; when the pulse and respiration are but little increased; when there are no night-sweats, no diarrhoea, and no complications. When the disease is very limited, ultimate recovery is probable; and every experienced physician has met with a few cases in which patients, who had every symptom of consumption in early life, have attained advanced age. In females, the first attack is more generally fatal than in males.

Pneumonia in the young or middle-aged adult, not yielding to treatment, and accompanied by rapid loss of flesh and strength, is probably due to tubercular deposit. Bronchitis, also, occurring at the same periods of life, and characterized by similar features, is probably due to miliary deposits occupying the whole, or the greater part, of both lungs.

TREATMENT.—I. Of incipient phthisis. II. Of confirmed phthisis.

I. In *incipient* phthisis, the indications are—(a) To promote the absorption of the tubercular matter; (b) To prevent or subdue local inflammation; (c) To improve the general health.

(a) With a view to promote the absorption of tubercle, iodide of potassium or of iron may be prescribed. Iodine may also be inhaled with the steam of warm water.

(b) Local inflammation may be prevented by guarding against cold and all causes that excite the circulation. Warm clothing; the avoidance of wet and cold; and due attention to the secretions, will fulfil the first part of this indication. Inflammation may be subdued by leeches applied occasionally over the painful spot; by counter-irritants, of which blisters and croton liniment are the best.

(c.) The general health may be improved by proper exercise, wholesome diet, regular habits, pure air, change of air, especially to the sea-side, sea voyages, cold sponging, followed by friction every morning. Chalybeate tonics. Iodide of iron. Cod-liver oil if there be emaciation.

II. In *confirmed* phthisis—that is to say, where suppuration has already taken place—the indications are (a)—To facilitate expectoration; (b) to subdue local inflammation; (c) to mitigate distressing symptoms; (d) to support the patient's strength.

(a.) When the patient's strength is little impaired, and the expectoration is abundant, emetics may sometimes be given with the best effect—a scruple of sulphate of zinc on first rising in the morning, once or twice a week, according to the strength, followed by a moderate quantity of warm water or chamomile tea.

I am inclined to restrict the use of emetics to those cases in which there is abundant expectoration. In incipient phthisis, attended with a dry cough, or scanty expectoration, emetics are as useless as they might *à priori* be expected to be. (G.)

(b.) Local inflammation must be combated as before indicated.

(c.) The most distressing symptoms are night-sweats, febrile flushes, palpitations, sickness, diarrhœa, and hæmoptysis. The *palpitation* may be relieved by digitalis, in doses of from x. to xx. drops of the tincture; the *cough*, by small doses of opium, in combination with compound squill pill, or by small and repeated doses of the more powerful sedatives. Of these the best is extract of stramonium, in the dose of the sixth of a grain made into the form of a lozenge with extract of liquorice, and sucked frequently in the course of the day and night when the cough is most urgent. A linctus containing chloroform and hydrocyanic acid may also be given with advantage. The *febrile flushes* are relieved by tepid sponging and cooling drinks. The *night-sweats* often subside under the use of the dilute sulphuric acid (Form. 146). This may be combined, when there is much restlessness, with a quarter of a grain of morphia. The distressing *sickness* which sometimes accompanies phthisis is relieved by the use of hydrocyanic acid and bismuth (Form. 75), with a bland farinaceous diet. *Diarrhœa* commonly subsides by strict regulation of the diet, and the prohibition of every form of solid food. If it be caused by ulceration, the treatment recommended under partial enteritis must be adopted. In *hæmoptysis*, the dilute mineral acids (Form. 46), or, if these fail, Forms. 56, 58, 73.

(d.) The patient's strength is best supported by nourishing and unstimulating diet. In the last stage of the disease, however, stimulants, such as wine and ammonia, may be given with advantage.

REMEDIES.—In incipient phthisis, a sea voyage, or a change of air and scene, or a change from a low damp spot to a dry bracing air, prove as useful as to other persons whose health is impaired from whatever

cause. This is probably the extent to which change of climate is beneficial in the early stage of phthisis. As, however, it has been shown that, in the East Indies, there is among our troops, as well as among the natives, a comparative immunity from consumption, a residence in that climate may be reasonably recommended, both to persons laboring under the incipient disease, and to families deeply tainted with scrofula. The places now usually recommended have not this probability in their favor, and the evidence in support of the change is on a level with that in favor of tar-water, naphtha, frictions to the spine, or dry-cupping to the chest. The fact is, that everything that has ever been recommended, however trivial, has seemed to effect a cure of consumption, simply because patients suffering from it do continually recover from existing attacks, and in rare instances regain perfect health, though pent up in towns, breathing the foul air of crowded workshops, living in unhealthy habitations, and surrounded by every unwholesome influence; exposed, in a word, to the continued action of the predisposing and exciting causes of the disease; while, on the other hand, many cases, stated to be phthisis, are merely sympathetic functional disorders of the lungs, or real diseases of the lungs of a non-tubercular origin. To recommend a change of climate in advanced stages of consumption is both unwise and cruel. But in incipient cases, a change may be fairly recommended, if it do not entail great inconvenience; for it is always a choice of evils, which ought to be fairly stated. The benefit is not sufficient to counterbalance great inconvenience or a large pecuniary sacrifice. (G.)

PROPHYLAXIS.—Persons who have an hereditary predisposition to phthisis, and those who have habitually delicate health, require unusually careful management. During childhood, nourishing and wholesome food, proper exercise, warm clothing, pure air within doors, moderate mental work, and careful attention to the state of the bowels, are necessary. During youth and adolescence exercise in the open air, especially horse exercise, cold sponging, and friction, every morning; the moderate employment of the voice in singing or reading aloud; and careful avoidance of all excesses, bodily or mental, should be insisted on. All unwholesome employments and sedentary occupations should be avoided. Residence in a dry warm climate, such as Undercliff, Torquay, Hastings, Cork, Madeira, the East and West Indies, the south of France, or Italy, Algiers, Cape of Good Hope, or Australia. Astringent chalybeate tonics.

DISEASES OF THE PLEURA.

PLEURITIS	Inflammation of the Pleura.
HYDROTHORAX . .	Water in the Chest.
EMPYEMA	Pus in the Chest.
PNEUMOTHORAX . .	Air in the Chest.

PLEURITIS.—INFLAMMATION OF THE PLEURA.

VARIETIES.—1. Acute. 2. Chronic.

1. ACUTE PLEURISY.

SYMPTOMS.—*General.* After rigors, and the symptoms of inflammatory fever, a sense of weight in the chest, which in a few hours become acute pain, referred to the side, about the level of the nipple, thence shooting to the sternum, clavicle, and arm-pit, and, in rare case, over the whole of the affected side. There is a short, dry cough, unless the disease be complicated with bronchitis, pneumonia, or phthisis; in which case the patient expectorates sputa characteristic of those diseases. The countenance is expressive of anxiety; the breathing is short and catching, and performed chiefly by the abdomen; the pain is increased by deep inspiration, by the act of coughing, or by lying on the affected side. The pulse is frequent, hard, and contracted, vibrating under the finger like the tense string of a musical instrument. The tongue is covered with a white fur; the urine is scanty and high-colored; the skin hot, and the cheeks flushed.

Sometimes severe and extensive pleurisy occurs without these marked characters. The pain is more diffuse, less severe, or produced only by pressure between the ribs of the affected side; and in some instances it is altogether absent. In most cases the acute pain, as well as the fever, subside on the third or fourth day, and the cough and dyspnoea abate, though the pleura is still inflamed.

Acute effusion into the pleural cavity and great collapse of the lung may occur without any other symptom than debility and quick breathing.

Local.—When the disease is recent, the effusion scanty, and the surfaces of the pleuræ not adherent, there are feeble respiratory murmur from diminished motion of the chest, slight dulness, friction-sounds, cessation of vocal fremitus, and ægophony. If adhesion takes place, the friction-sounds cease; and if effusion occur to a considerable extent, the physical sounds are those stated under Empyema.

TERMINATIONS.—In resolution; in adhesion; in effusion followed by collapse of the lung; in the chronic form.

MORBID ANATOMY.—Injection of the subserous cellular membrane with dryness of the surface of the pleura; effusion of coagulable lymph, or of pus mixed with flakes of lymph; and recent adhesions. Abundant effusion of clear serum and collapse of the lung.

CAUSES.—*Predisposing.* Rheumatic diathesis.—*Exciting.* Cold; external injuries, fractures of the ribs, etc.; febrile state; the inflammation of adjoining parts; tubercle; fever.

DIAGNOSIS.—From *pleurodynia*, by the severe constitutional symp-

toms and characteristic local signs. From other diseases of the chest by the physical signs.

PROGNOSIS.—*Favorable.* A recent attack promptly treated; absence of complications; if the disease be not recent, the absence of hectic, and of great debility.—*Unfavorable.* Rapid and extensive effusion; implication of both sides of the chest; the co-existence of organic disease; hectic fever and great debility; dropsy.

TREATMENT.—In the robust a full bleeding from the arm, followed by full doses ($\frac{1}{4}$ to $\frac{1}{2}$ gr.) of tartarated antimony, every one, two, or three hours; brisk aperients, and a strict antiphlogistic diet. For slighter degrees of inflammation, diaphoretics with opium (Forms. 208 and 83), linseed and mustard poultices, cupping or leeches and blisters.

2. CHRONIC PLEURISY.

SYMPTOMS.—Chronic pleurisy is usually a consequence of the acute form; the effusion remains, and usually increases, and if there be continued pyrexia, it sometimes becomes purulent. Emaciation, dyspnoea increased by exertion, and inability to lie on the healthy side, are the chief symptoms. These are apt to alternate with acute pain, and increased dyspnoea. Hectic indicates that the effusion has become purulent.

TREATMENT.—To promote the absorption of the effused matter, mercury (Form. 294) may be given until constitutional effects are produced; or, if there be much debility, the continued use of iodide of potassium, the infriktion of iodide unguents, the repeated application of blisters.

The general health must be supported by the use of tonics; and, in cases of great debility, by stimulants and a nourishing diet.

These measures may cause the absorption of the effused fluid; but when the quantity is large, and especially when it consists chiefly or wholly of pus, absorption rarely occurs, and the disease now takes the name of *Hydrothorax* or *Empyema*.

HYDROTHORAX AND EMPYEMA.

The former term signifies a collection of serum, the latter a collection of pus, in one or both cavities of the pleura. The physical symptoms are the same whether the fluid be pus or serum. At first it is impossible to say positively which of these two fluids is present. The *general symptoms* are those of chronic pleurisy. When the effusion into one side of the chest is considerable, there is dyspnoea, increased by exertion; and, on lying down, a painful sense of weight and oppression at the chest; the face is pale or dusky, and expressive of anxiety, and palpitation is often a distressing symptom. There is a dry, harassing cough,

with expectoration sometimes tinged with blood. In describing his sensation, the patient frequently speaks of breathing through water. There is inability to lie on the sound side; but when the disease exists in both pleural cavities the patient cannot lie down at all.

When the effusion is purulent, ulceration is apt to occur in some of the surrounding textures, and an opening is formed into the lungs, through the walls of the chest, or through the diaphragm. The bones may also become carious. When the matter points externally, fluctuation is perceived in the part, and the integument becomes tense during expiration. When an opening takes place into the lungs, a large quantity of offensive matter is discharged during a fit of coughing, and this is followed by great relief to the breathing. When the opening forms externally, the discharge of matter is increased by coughing.

The *local signs* are as follows:—Enlargement of the diseased side, proportioned to the extent of the effusion; the ribs raised as in full inspiration; the intercostal spaces bulged, level with the ribs, and sometimes perceptibly fluctuant. When the effusion is great, universal dulness on percussion in all postures, with absence of vocal fremitus and respiratory murmur, and displacement of the heart. When moderate, the dulness on percussion, and the respiratory and vocal sound shift with the position of the body. Puerile respiration on the sound side, proportioned to the degree of compression on the lung of the diseased side. When the effusion is slight, ægophony, generally most distinct about the angle of the scapula.

TREATMENT.—Having failed to produce absorption in the course of a week by the general and local treatment above mentioned, it will be necessary to remove the fluid, if there be sufficient to impede the breathing. In no case must paracentesis be delayed too long, else the lung will become completely collapsed and incapable of re-expansion.

If we have positive indications that the fluid is pus we evacuate it at once. If the matter point in any part of the chest, a large orifice should be made there, with a scalpel, for its free evacuation; but if not, we select a spot midway between the spine and sternum, above the upper margin of the fifth rib on the left side, of the fourth on the right side, and if the effusion be not very great, a small incision being previously made through the skin with a scalpel, a full-sized trocar should be pushed horizontally inwards, perpendicular to the median plane. When the effusion is great, we may operate above the fifth right rib, and the sixth left rib. Before the introduction of the trocar, the skin should be drawn upwards, so that the external and internal opening may not coincide. To prevent the introduction of air during the operation, the canula should be attached to an india-rubber tube, filled with water, and its free extremity suspended in water. By means of a stop-cock the fluid should be allowed to flow *very slowly* from the chest; and meantime we should ascertain, by stethoscope, whether the lu proportionately expanding. A

as they continue to do so, we may allow the fluid to flow slowly; but as soon as they cease to expand, the flow should be stopped, or air will be admitted into the pleural sac. The more slowly the fluid is removed, the less chance is there both of the admission of air and of renewed effusion. Simultaneously with the withdrawal of the canula, and while the patient is holding the breath, or *expiring*, the integument should be slipped over the orifice in the chest-wall, and retained there by means of collodion and a pad of lint.

If we discover the fluid to be pus, the canula may be withdrawn, a free incision made, and a drainage-tube inserted.

Pressure by broad bands of adhesive plaster may be advantageously employed both during and after the operation.

In many cases the removal of the fluid, whether brought about by internal remedies or by operation, cannot take place without more or less affecting the shape of the chest; the lung may be either permanently condensed by the pressure, or bound down by firm adhesions. As the fluid then is absorbed, the ribs fall in, the chest shrinks, the shoulder falls, and remains more fixed than that of the sound side, the scapula approaches the spine and is more prominent, and the spine itself is often concave towards the same side. The lung of the sound side, expanding beyond its usual limits, displaces the heart. These changes are accompanied by appropriate physical signs of collapsed lung, namely, dulness on percussion, impaired respiratory murmur, bronchophony, and vocal fremitus. When the effusion is partial and confined by adhesions, the contraction is also partial, and the physical signs are more limited in extent.

Pleurisy may occur in young people, and lead to great deformity, without much impeding the breathing; but when it attacks the adult, it generally leaves behind it some dyspnoea, with a strong tendency to recurrence.

PNEUMOTHORAX.—AIR IN THE CHEST.

Air may find its way into the cavity of the pleura in two ways: 1. By an opening in either the pulmonary or parietal pleura. 2. By secretion. The first is the more common cause.

SYMPTOMS.—These vary with the circumstances under which the opening takes place, and the previous condition of the pleura. When a superficial ulcer of the lung opens into previously healthy pleural sac, the entrance of air gives rise to dyspnoea, acute pain, dry cough, spasms of the intercostal muscles, a frequent, feeble, and sometimes irregular pulse. These symptoms, which are more or less sudden, according to the size of the opening, are soon followed by those of inflammation of the pleura. When inflammation pre-exists, the presence of air not only tends to increase it, but converts the otherwise inodorous pus into a foetid fluid.

PHYSICAL SIGNS.—Unusually clear tympanitic sound on percussion, with great indistinctness or total absence of respiratory murmur on the affected side; the breathing has an *amphoric* or *metallic resonance*, most distinct at the root of the lung behind, and during expiration; the voice and cough are attended by a metallic ringing echo, like that produced by speaking under a stone arch. There is increased distinctness of the respiratory murmur on the sound side. When there is liquid as well as air in the pleural sac, the physical signs are, dulness on percussion as high as the level of the fluid, which shifts with change of posture; *metallic tinkling*, and splashing on succussion.

PROGNOSIS.—Unfavorable, but life is often prolonged for months.

TREATMENT.—This depends upon the stage of the disease, and the state of the patient. The sudden rupture of the lung is generally followed by symptoms of collapse and irritation, requiring stimulants and opium; when inflammatory symptoms come on, antiphlogistic measures are required. It may be necessary to resort to local depletion by cupping or leeches, and to counter-irritation. Tartar-emetic may be given in nauseating doses, and the bowels should be kept free by gentle aperients.

When extreme dyspnoea is present, an opening must be made with a fine trocar to give exit to the air, and this should be done at a part of the chest below the level of any liquid it may contain. The operation may be repeated if necessary.

CHAPTER IV.

DISEASES OF THE DIGESTIVE CANAL AND ABDOMINAL VISCERA.

1. Diseases of the Mouth, Fauces and Gullet.
2. Diseases of the Stomach.
3. Diseases of the Intestines.
4. Diseases of the Stomach and Intestines.
5. Diseases of the Peritoneum.
6. Diseases of the Liver, Pancreas, and Spleen.

DISEASES OF THE MOUTH, FAUCES, AND GULLET.

STOMATITIS	Inflammation of the Mouth.
GINGIVITIS.	Inflammation of the Gums.
GLOSSITIS	Inflammation of the Tongue.
TONSILLITIS	Inflammation of the Tonsils.
PAROTITIS	Inflammation of the Parotid Gland.
CYNANCHE THYROIDEA	Bronchocele.
ŒSOPHAGITIS	Inflammation of the Gullet.
OTHER DISEASES OF THE ŒSOPHAGUS.	

STOMATITIS.—INFLAMMATION OF THE MOUTH.

VARIETIES.—1. Stomatitis erythematosa; 2. S. follicularis; 3. S. fungosa (aphthæ); 4. S. mercurialis; 5. S. gangrenosa.

1. STOMATITIS ERYTHEMATOSA SEU VESICULARIS.

SYMPTOMS.—This is a disease of early infancy, characterized by redness and heat, and sometimes by dryness, of the mouth and of the tongue, and the eruption of groups of minute vesicles upon it and around its edges. It often coexists with inflammation of the stomach and bowels. In infants from the seventh to the ninth month fever is often superadded. The inflammation may extend to the whole mouth, and even to the lips, which swell, excoriate, and sometimes become the seat of *herpes*. The chronic form is often attended by profuse salivation.

TREATMENT.—If the mouth and tongue be dry, lint or fine sponge

moistened with thin barley-water should be frequently passed over them. The diet should be of milk combined with a little fluid magnesia, given, if the bowels be irritable, in small quantities at short intervals.

2. STOMATITIS FOLLICULARIS.

SYMPTOMS.—Large, roundish, elevated, white, thick-walled, distinct vesicles, on the inner surfaces of the lips and cheeks, the sides of the tongue and the gums. The vesicles usually present a depressed centre and a minute point, the sealed orifice of the follicle. They soon break, and discharge a little glairy fluid. A minute superficial ulcer, bounded by a red margin and apt to spread a short distance follows.

The diseases attacks children about the time of the first teething. Old people are also liable to it.

CAUSES.—Inflammation of the mucous follicles, and simple racemose glands, sympathetic with some disorder of the alimentary canal.

TREATMENT.—For infants 3 i. doses of solution of bicarbonate of magnesia, and solution of nitrate of silver locally applied. In adults attention to the disordered function of the alimentary canal.

3. STOMATITIS FUNGOSA.—THRUSH.

Under the specific name *fungosa* are included all the aphthous affections known to be due to the presence of fungi.

DEFINITION.—Mouldiness of the mucous membrane of the mouth.

SYNONYMS.—*S. membranosa*. Aphthæ. Muguet. Millett.

SYMPTOMS.—White, opaque, conical, irregularly-rounded or ring-like elevated patches, appearing alone or simultaneously on the inner surface of the lips and cheeks, on the gums, palate, and tonsils, and on both surfaces, but especially the sides, of the tongue. Sometimes the disease extends down the œsophagus into the stomach, and along the respiratory passages into the bronchi. In aggravated cases the patches become confluent, and form a loose, ragged membrane of a dirty white or grayish color, extending over a considerable portion of the tongue or cheek. They soften down and become ragged on their surfaces, and after a variable time (from ten hours to several days) separate, and leave either a smooth, red, unbroken surface, or a superficial excoriation. The abraded surface may now become covered with healthy epithelium, or the diseased condition may be reproduced. This affection is a frequent accompaniment of gastro-intestinal irritation in weakly infants. There is increased difficulty of sucking and swallowing. If the disease extend into the alimentary canal, it will produce vomiting and diarrhoea, with mucous stools. Coughing and mucous expectoration, mixed with gray aphthous threads, mark its extension into the air-passages. When the child is in a low state of health, the aphthæ sometimes produce unhealthy sores, the surrounding parts become swollen, soft, and livid, there is profuse

salivation; and the child, refusing food, becomes pale and cold, and at last dies of inanition.

CAUSES.—*Predisposing.* A tender epithelium as in infants, and after desquamation, resulting from local or general disease. The disease affects persons of all ages.—*Exciting.* The development of a parasitic fungus (*Oidium albicans*) in the epithelial covering of the mucous membrane. The plant consists of minute tubular jointed filaments, and of bright spherical or oval spores developed at the joints and extremities of the filaments. The spores and the joints of the thread-like stems contain one or two bright rounded granules. (Fig. 74). The filaments (*g, k, l,*) grow in between the epithelial cells in every directions, and form a network, into the meshes of which the spores (*c*) are poured, disturbing and loosening the epithelium, which becomes swollen, opaque, and friable. The disease rarely extends below the cellular layer; but as the deepest growing portion of this layer is frequently invaded, the disease is not thrown off when the superficial parts are separated. Sometimes the dis-



Fig. 74.

ease extends to the corium itself, producing unhealthy ulceration. The racemose glands are a favorite seat of the fungus, their little open-mouthed ducts allowing of its ready introduction to the softer cells within them.

CONTAGION.—As the disease is due to the growth of a fungus, its presence, and a favorable condition of the mucous membrane will always result in its development. The fungus is probably derived, in the first instance, from some mouldy article of diet. When once established, it may spread from one child to another throughout a foundling hospital. The disease may be conveyed from the child's mouth to the nurse's nipple, and from the latter to the mouth of other children; and by the use in common of cups, spoons, towels, baths, and other domestic articles.

TREATMENT.—Gastric irritation and diarrhœa, which frequently attend this disease, must be treated on general principles. The mouth should be frequently washed with a saturated solution of borax, or smeared with borax and honey. Under this treatment the disease soon yields.

Aphthous ulcers of the mucous membrane of the lips and tongue are frequent concomitants of skin disease caused by vegetable parasites. I

have frequently observed them in persons affected with *dermmycosis circinata* (*herpes circinatus*). The fungus represented in Fig. 75 is from a case in which the external disease was confined to two large semicircles on the upper lip. On the tongue were two aphthous ulcers, both near the tip; one was quite depressed, as if partially cicatrized, and extended into the vascular corium. The epithelium forming the margins of the ulcers was opaque and thick and contained the fungus. All parts of the mucous membrane are liable to be affected by vegetable parasites, and especially when the vital powers of the individual are depressed, as in the last stages of lingering diseases. The specimen of *Oidium albicans* represented in Fig. 76 is from the kidney of an aged patient who came under my care in King's College Hospital. She was admitted in the last stage of pulmonary consumption; her nervous power was much depressed, as was indicated by apathy and low temperature of body. The parasite had



Fig. 75.



Fig. 76.

invaded the vascular tissue of the mamilla for the distance of about a line between the terminations of the tubules. The patient had no cutaneous disease. The vulva and nipples are very liable to the aphthous affection. Israel (Virch.: Archiv, B. lxxiv.) has recorded a case of general mycosis.

4. STOMATITIS MERCURIALIS.—MERCURIAL SALIVATION.

SYMPTOMS.—A disagreeable brassy taste, looseness of the teeth, tenderness of the gums, a peculiar foetor of the breath, and a constant profuse discharge of saliva, with shreds of epithelium; shooting pains in the face, stiffness of jaw, and swelling of the parotid and submaxillary glands. The gums are first marked by a distinct red line, and then become generally red and swollen; little ashy superficial ulcers appear upon them, and they are apt to bleed; after a few days, pus oozes from their margins here and there, and they are more or less separated from the teeth. The inflammation may extend to the interior of the cheeks and to the tongue, which becomes swollen, indented, and furred; and it sometimes leads to ulceration of the gums and cheeks, and, in rare cases gangrene. These local symptoms are attended by slight irritative fever.

The duration of mercurial salivation, in slight cases, is two or three

days; in severe cases, ten days or a fortnight, and if ulceration or gangrene ensue, still longer. Several weeks may elapse before the gums are restored their healthy state.

CAUSES.—The accumulation of mercury in the system from internal administration or external application of some of its compounds.

Some persons are exceedingly susceptible of mercury, while others are with difficulty brought under its influence. Great vigilance is, therefore, required in its use. In one case severe stomatitis, with slight ulceration and bleeding of the gums, swelling of the salivary and cervical glands, and severe pain in the jaws, has been induced in three days by the infraction of 100 grains of mercurial ointment into the groins, and the internal administration of gr. iiss. of calomel in divided doses. In another the repeated application of the ung. hyd. oxidi rubri to an extensive ulcerated surface caused the same effect.

DIAGNOSIS.—In most cases, mercurial salivation is distinguished from that of pregnancy, that produced by antimony, copper, arsenic, and gold, jaborandi, digitalis, prussic acid, iodide of potassium, and several other substances, by the excessive foetor of the breath.

TREATMENT.—Gargles of alum or zinc with carbolic acid, chlorides of soda or lime, tannic or hydrochloric acid, acetate of lead, or brandy and water. In more severe cases, and when the gums are ulcerated, a strong solution of nitrate of silver applied by a brush, or nitrate of silver, or sulphate of copper in substance. If much swelling of the glands be present, leeches to the jaws, followed by blisters behind the ears, and warm fomentations: and if much irritation, opium. Saline aperients, and moderate doses of quinine with acid, complete the treatment.

5. STOMATITIS GANGRENOZA.—GANGRENE OF THE MOUTH.

SYNONYMS.—Cancrum oris; Noma.

SYMPTOMS.—The attention is often first called to a circumscribed indolent, hard shining swelling on one cheek (generally the left), without pain, heat, or redness. On examining the mucous membrane of the mouth, one or more ulcers, blisters, or white eschars, will be found on the internal surface of the cheek, lips, or gums. These gradually increase in size, and discharge a dirty, sanious, offensive fluid; at the same time the saliva, increased in quantity, flows from the mouth mixed with membranous shreds. The swelling of the cheek increases till it involves the eyelids and lips. A dark livid spot now occupies the centre of the swelling, enlarges, softens, and sloughs. Gangrene having set in, makes rapid progress both within the mouth and on the surface, and at length involves the cheek, lips, and gums, and in extreme cases, the nostrils, eyelids, neck, and pharynx; the teeth fall out, and the bones of one or of both jaws, and even the cheek and frontal bones, are ultimately involved. The constitutional symptoms by no means keep pace with the severity of

the local affection. In most cases there is no fever, no loss of appetite, and little impairment of strength. The little patient often continues to run about and play, to sit up, and to amuse himself till within a short period of his death, the faculties of the mind remaining intact. Less frequently there are febrile symptoms, and still more rarely delirium. Local reaction affords hope of recovery. In fatal cases, death results from asthenia.

COMPLICATIONS.—Pneumonia (58 cases in 63); pleurisy; enteritis; gangrene of the lungs, pharynx, œsophagus, and stomach; gangrene of the extremities, and of the vulva; scrofulous affections.

CAUSES.—*Predisposing*. Childhood, and all causes of debility. Inflammation of the lungs or intestines.—*Exciting*. Overcrowding, and impure air.

DIAGNOSIS.—*Cutaneous* swelling of a gangrenous character distinguishes this affection from Anthrax, and is attended by acute pain and inflammatory symptoms. Anthrax is very rare on the cheek. *Scurvy* is usually confined to the gums. The effects of *mercury* are known by the history of the case, the swollen gums and tongue, the abundant flow of saliva, the peculiar odor of the breath, and the numerous superficial ulcerations. The diagnosis is very difficult when the illness is of some standing, and the previous history obscure.

PROGNOSIS.—Extremely unfavorable. Mortality about 75 per cent. An early age, previous great exhaustion, and treatment postponed till the gangrene has fairly set in, are unfavorable circumstances.

TREATMENT.—I. The *local* treatment consists in the use of stimulant applications. Previous to the appearance of the livid spot, the linimentum camphoræ compositum, or the linimentum ammoniæ to the cheek, or lunar caustic; should gangrene have set in, strong acetic or nitric acid. The mouth should be washed out frequently with an aqueous solution of carbolic acid, or gargle (Form. 63).

II. The *general* treatment consists in the use of light nourishing diet, wine, ammonia and bark, or perchloride of iron in large doses.

GINGIVITIS.—INFLAMMATION OF THE GUMS.—PAINFUL DENTITION.

SYMPTOMS.—Dentition is generally accompanied by salivation, and by hot, painful, red and swollen gums. The infant puts the fingers, or whatever it can grasp, into the mouth, and presses the gums upon it. But when the true inflammation is present, he cannot bear even the pressure of the nipple. This inflammation of the gums may extend to the lining membrane of the mouth, and be followed by aphthæ, ulceration, or gangrene.

The general symptoms are feverishness, fretfulness, disturbed sleep,

flushing of face and head, often accompanied by inflammation of the brain or its coverings, and diarrhœa. In extreme cases, water in the head, with convulsions, inflammation of the lungs, or laryngismus stridulus. Skin diseases are also common complications, especially lichen and strophulus.

TREATMENT.—In mild cases, gentle friction of the gums; in more severe cases, scarification. The warm bath, simple diet, and a strict attention to the state of the bowels, complete the treatment. Opium and hemlock are most valuable to calm irritation.

Incision of the gums ought not to be practised unless they are swollen, hot, and painful from the pressure of the teeth. When the incision is made prematurely, dentition, so far from being accelerated, is retarded. The incisions should be deep and free, one parallel to the alveolar margin, and a second at right angles to it.

GLOSSITIS.—INFLAMMATION OF THE TONGUE.

SYMPTOMS.—Inflammation of the whole tongue is rare, except as the sequel of profuse salivation, or of strong irritant applications. Abscess appears at first as a hard tumor on the upper surface, it slowly suppurates, and leaves a deep penetrating ulcer.

Inflammatory œdema of the whole tongue is often a severe and dangerous disease, marked by heat, swelling, and pain, difficult speech and deglutition, dyspnœa, salivation, swelling of the veins of the neck, and determination of blood to the head, with inflammatory fever. It arises, in most instances, from gastric or intestinal irritation, and is cured by purgatives and the application of nitrate of silver.

TERMINATIONS.—In resolution, suppuration, or gangrene. In extreme cases it threatens suffocation or apoplexy.

CAUSES.—Mechanical injuries; strong irritants; the sting of insects; salivation; extension of disease from the tonsils, gums, and cheeks.

TREATMENT.—In the early stage, brisk purgatives and antiphlogistic remedies, with ice to the surface of the tongue. In a more advanced stage, incisions. If suffocation threaten, tracheotomy must be performed.

Ulceration sometimes takes place on the side of the tongue, from the irritation of a decayed tooth, which must be filed or removed.

Epithelial cancer of the tongue is known by its peculiar hardness, the irregular ulceration, the acute lancinating pain, and the cachectic state of the patient.

Syphilitic ulcers of the tongue, with foul surface and irregular hard margins, occupying chiefly its edges, require a course of mercury or iodide of potassium, with the application of solid sulphate of copper, or nitrate of silver. Ichthyosis of the tongue is due to syphilis, and known by a bare serpiginous thickening and opacity of the epithelium with a tendency to abrasion and cracking.

TONSILLITIS—INFLAMMATION OF THE TONSILS.

1. ACUTE TONSILLITIS.

SYNONYMS.—Cynanche tonsillaris. Angina tonsillaris. Amygdalitis. Quinsy. Inflammatory sore throat.

SYMPTOMS.—After rigors, followed by flushes, pains in the back and limbs, and a full, frequent, and compressible pulse, a sense of fulness, heat, and dryness in the throat, pain and difficulty in swallowing and speaking. The throat presents a diffused redness, of a deeper tint over the tonsils, which are swollen, and sprinkled with grayish-yellow spots, consisting of secretion from the gland blocking up the mouths of its follicles. The tongue is coated with a white creamy fur. As the disease advances, the swelling of the tonsils increases; the mouth is almost closed; the acts of swallowing and speaking become more difficult and painful; liquids return through the nostrils, there is a constant discharge of viscid saliva, the respiration is affected, and there is a painful sense of tension, with acute darting pains in the ears. The febrile symptoms increase, and the pain in the back and limbs becomes more acute; but in a more advanced stage, the fever often subsides, or changes its character from inflammatory fever during the first stage, to mild hectic during the stage of suppuration.

DURATION.—From five to seven days.

TERMINATION.—By resolution, suppuration, ulceration, or gangrene; or in chronic enlargement.

PROGNOSIS.—The disease usually terminates by resolution. Suppuration is to be feared when the disease does not yield to remedies, when the local pain is acute and throbbing, or when there are rigors or cold shiverings. An abscess is indicated when there is much swelling, a sense of fluctuation on pressure with the finger, a whiteness of some part of the tumor, and, finally, purulent expectoration. Gangrene is to be dreaded, if the fever be intense, and the pain extremely violent, without any sign of resolution or suppuration. A pinched and sunken countenance, the extremities cold and covered with a clammy perspiration, a small, frequent, weak, and intermittent pulse, and a very foetid odor issuing from the mouth, are signs of its existence.

CAUSES.—*Predisposing.* Youth, debility, syphilis, previous attacks. —*Exciting.* Cold; cold drinks while the body is heated; the deglutition of caustic or irritating fluids.

TREATMENT.—When the disease is slight, the treatment proper to catarrh. When more severe, the tonsils should be scarified and leeches applied below the angles the jaws, followed by a poultice to the throat, and a brisk aperient. When, however, the gland suppurates and feels tense and yielding, a lancet should be thrust directly backwards into the most prominent part, and the pus evacuated. The mouth should then

be gargled repeatedly with warm water. When the tonsils are so swollen as to impede the breathing, emetics sometimes give relief. If the skin be hot and the pulse strong, saline diaphoretics should be given; but if the patient is very weak, quinine, beef-tea, and wine must be prescribed.

2. CHRONIC TONSILLITIS.

SYMPTOMS.—Enlargement and induration of the tonsils, which, projecting towards the middle line, impede swallowing, speaking, and hearing. The mouth is often kept partially open; the breathing is audible and the voice sibilant.

CAUSES.—*Predisposing.* Syphilis, scrofula, and chronic dyspepsia. —*Exciting.* Acute inflammation of the gland.

TREATMENT.—*General.* Chalybeate tonics with iodine, change of air, warm clothing.—*Local.* Strong solution of nitrate of silver, astringent gargles (Form. 60), the occasional application of a leech or small blister to the angles of the jaws. Iodine unguents and liniments. When these remedies are unavailing, and the tonsils are so large as to impede deglutition or respiration, or to affect the voice, excision may be practised.

Ulceration of the tonsils may occur in disordered states of health, but it is generally a secondary effect of syphilis. The disease is slow in its progress; but, if not checked, it extends into the nostrils and fauces, and ultimately attacks the larynx itself. A gargle of chloride of soda may be used with advantage, and the ulcers may be frequently touched with nitrate of silver. The general health must be carefully attended to, and the strength supported by a nourishing and generous diet. *Syphilitic ulceration of the tonsils* requires the same treatment as other secondary diseases.

The disease known as *Clergyman's sore throat*, or *dysphonia clericorum*, consists at first in a chronic enlargement of the tonsils and lengthening of the uvula, with a relaxed and congested condition of the mucous membrane of the fauces, which gradually extends to the pharynx and the upper part of the larynx. In the most severe cases of the disease, there is also ulceration of the mucous follicles of the parts affected, and the mucous membrane, especially about the pillars of the fauces, is coated with a tenacious secretion. The *symptoms* are dryness and tickling of the throat, constant hawking and spitting, and hoarseness increased after reading or speaking, and attended sometimes with pain in the upper part of the windpipe. The disease is generally traceable to a bad method of reading and speaking in unhealthy persons. The treatment consists in the exhibition of alteratives and tonics to improve the general health, the particular remedies employed being determined by the state of the system; and in local measures directed to remove the relaxed and congested state of the mucous membrane. The best local remedy is a

strong solution of nitrate of silver (gr. v. to 3 i.) applied by means of a camel's hair brush or a piece of sponge to the whole of the inflamed surface. If this mode of application should prove insufficient, the solution of nitrate of silver may be applied to the upper part of the larynx by means of a whalebone probang tipped with sponge. When there is great enlargement of the tonsils of long standing, excision may become necessary, as in simple chronic tonsillitis. Clergymen suffering in this way should acquire the habit of taking a full breath very frequently while reading or preaching, so as to speak from the lungs and not from the throat; and take lessons in elocution.

PAROTITIS.—CYNANCHE PAROTIDEA.—THE MUMPS.

SYMPTOMS.—After slight febrile symptoms, fulness and soreness at the angle of the jaw, with pain on moving the part. The swelling extends by degrees upwards to the space between the cheek and ear, and downwards to the submaxillary gland, occasioning great deformity. On the fourth day it begins to subside. It is generally confined to one side, but sometimes it attacks the other afterwards; it rarely attacks both at once. The disease is sometimes accompanied, and sometimes followed, by painful swelling of the breast, or testicles. It generally terminates in resolution.

Suppurative inflammation of the parotid is a frequent concomitant of the latter stage of typhus and enteric fevers, and is often developed with remarkable rapidity. Without any premonitory indication, a large congested, hard and painful swelling forms round the ramus of the jaw in a few hours; and the inflammation rarely stops short of suppuration.

CAUSES.—*Predisposing.* The period of childhood.—*Exciting.* Exposure to cold; scarlatina, and other febrile diseases.

CONTAGION.—A medical student had mumps in London, while his mother was staying with him. They remained in town till the swelling disappeared, and then went 100 miles into the country. There was no mumps in the neighborhood; but a fortnight after their arrival one of the children was taken ill with it, and it afterwards successively affected, at regular intervals of a fortnight, each member of a large family.

TREATMENT.—Warm fomentations, with the application of flannel in the intervals; gentle aperients, and farinaceous diet. If much inflammation be present, leeches may be applied. The secondary affection of the breasts or testicles must be treated in the same way. Should any swelling remain after the inflammation has subsided, friction with stimulating liniments may be prescribed.

BRONCHOCELE.—CYANCHE THYROIDEA.—GOITRE.

SYMPTOMS.—A swelling affecting the entire thyroid gland, or a single

lobe of it; at first firm and elastic, but after a time soft, with small, flabby portions of a denser consistence. It grows slowly at first, but after a time rapidly, extending upwards towards the jaw, sometimes beyond the limits of the neck, and even hanging over the chest. It sometimes attains an enormous size, and then causes serious inconvenience by its pressure on the trachea and vessels of the neck.

MORBID ANATOMY.—Hypertrophy of the gland, partial or entire, with enormous enlargement of its vesicles, so as to present, when cut into, cavities often of considerable size, and containing serous fluids of various consistence.

CAUSES.—*Predisposing.* Female sex; puberty; hereditary tendency. —*Exciting.* Unknown. The disease is endemic in localities differing widely from each other in all respects. But the most common character-



Fig. 77.

istic of the spots in which it prevails is want of due movement of the air. It is very common in deep valleys shut in by mountains. Combined with every degree of idiocy and imbecility it is the *Cretinism* of the Val-lais. It is so common in Derbyshire as to be called the "Derbyshire neck." It is also common in the valley of the Teme, and the dale of the Corve, N.W. of Ludlow, particularly in the vicinity of the calcareous beds of the Silurian and Devonian formations.

TREATMENT.—Iodine externally. Iodide of potassium internally. Burnt-sponge, which contains minute quantities of iodine, was formerly in great repute for the cure of this malady. Removal from the district in which the disease originated.

When other means fail, and the tumor, by its pressure, causes great inconvenience, ligature of the thyroid arteries.

A condition known as *Exophthalmic goitre*, is occasionally met with in females near the climacteric periods of life; rarely in males. Associated with a general irritability of the heart and vascular system, there is special dilatation, with throbbing of the thyroid and ophthalmic arteries, causing enlargement of the thyroid gland, and protrusion of the eyeballs. These effects were well marked in the patient delineated in Fig. 77. The disease appears to be due to more or less complete paralysis of the vasomotor nerves of the parts affected, and it is sometimes accompanied by local sweating and dilatation of the pupils. Palpitation and functional bruits are common. The treatment consists in stimulation of the sympathetic, and for this purpose belladonna and ergot have proved most successful.

ŒSOPHAGITIS.—INFLAMMATION OF THE ŒSOPHAGUS.

SYMPTOMS.—Pain, or a burning sensation, in the act of swallowing, either in a part of the œsophagus, or through its whole extent. This pain is sometimes increased on pressing the larynx firmly towards the spine. When the inflammation extends to the mucous membrane of the stomach, there is pain in the epigastrium, with vomiting, leading, in some instances, to the expulsion of tenacious casts of the tube. In cases produced by swallowing hot water or corrosive poisons, large flakes of epithelium are often discharged.

CAUSES.—Stimulant and corrosive applications to the tube itself, such as hot water, and the several corrosive poisons. The extension of inflammation from the mouth, fauces, or tonsils; wounds.

TREATMENT.—The frequent use of ice or iced water, and a farinaceous, liquid diet. So long as the difficulty of swallowing remains very great, the patient must be supported by nutritious injections. After the first or second week a large well-oiled bougie should be carefully passed daily, in order to prevent constriction during cicatrization.

OTHER DISEASES OF THE ŒSOPHAGUS.

The gullet is subject to other functional and structural diseases; among the former, rheumatism and spasmodic stricture; among the latter, hypertrophy of the submucous tissue, and various malignant degenerations, such as scirrhus and medullary sarcoma. It is also liable to pressure from aneurism of the aorta or carotid artery, from enlargement of the cervical glands, and from diseases of the spine.

Rheumatism of the gullet is a rare disease, characterized by painful deglutition distinctly referred to some part of its course, accompanied by rheumatism of other muscles, and yielding to the treatment proper to muscular rheumatism.

Spasmodic stricture of the gullet is characterized by difficulty of swallowing, accompanied by a sense of choking, the food either passing into the stomach after many efforts to swallow, or being rejected. It is generally associated with other symptoms of hysteria, and is amenable to the treatment proper to that disease. It is distinguished from organic stricture by the circumstance of its not being constant, but subject to intermissions; by the result of an examination with a bougie; by the history of the case; and the presence of other hysterical symptoms. It requires no local treatment; but in obstinate cases the daily introduction of a bougie may be attended with benefit.

Dysphagia, a fixed pain at the head of the neck or sternum, and corresponding to the size of obstruction; rumination of light solid food, such as bread and butter, with the discharge of mucus, sometimes tinged with blood, declare the early stage of *cancer*. In this disease the use of bougies should be avoided.

DISEASES OF THE STOMACH.

CONGESTION	Of the Stomach.
HÆMATEMESIS	Vomiting of Blood.
GASTRITIS	Inflammation of the Stomach.
ULCER	Of the Stomach.
PERFORATION	Of the Stomach.
CARCINOMA	Of the Stomach.
OTHER FORMS OF STOMACH DISORDERS.	

CONGESTION OF THE STOMACH.

SYMPTOMS.—The mucous membrane of the stomach is an extended and highly vascular granular surface, and when it becomes congested the secretion of gastric juice takes place slowly, and in diminished quantity. Anorexia, dyspepsia, with a dryish tongue and thirst, some pain and tenderness in the epigastrium, and constipation are the usual symptoms.

The distended capillaries are sometimes relieved by an oozing of blood. The effused blood, acted on by the acid secretion of the stomach, forms black coagula, which may be rejected by vomiting, constituting *hæmatemesis*; or the clots undergo disintegration in the stomach, and are rejected as “coffee ground” or “black” vomit; or they may pass along the alimentary canal, and, after further alteration, be ultimately evacuated as a black grumous or pultaceous stool, constituting *melæna*.

CAUSES.—1. Obstruction to the flow of blood through the liver and thoracic viscera. If a ligature be placed around the portal vein, or the vena cava inferior at the under surface of the diaphragm, blood will ooze from the stomach. Some diseases of the liver cause an obstruction to the

portal circulation almost tantamount to a ligature round the main trunk; and obstruction to the flow of blood through the lungs and heart are nearly equivalent in their effects on the stomach to obliteration of the inferior cava above the liver. Hence congestion of the stomach is sooner or later a prominent symptom in cirrhosis of the liver; in atrophy from long-continued obliteration of the bile ducts; and in diseases, such as cancerous tumors, which involve and press on the portal vein. Acute suppression of bile, such as occurs in yellow and relapsing fevers, commonly produces severe congestion of the stomach, resulting in vomiting of altered blood. The disease of the lungs which most frequently leads to congestion of the stomach is emphysema; and disease of the mitral valve, which both contracts its orifice and permits regurgitation, is the condition of the heart which most commonly produces the same result.

Congestion of the stomach may also be due to functional disorder, such as suppressed menstruation, in which the stomach sometimes assumes a vicarious office, and a monthly hæmatemesis takes the place of the catamenia. In some cases this happens during the whole natural term of menstruation.

TREATMENT.—The congestion of the portal circulation may be relieved by free watery purgation induced by the non-irritating saline purgatives, such as potassio-tartrate of soda. The abdominal vessels may also be relieved, though less effectually, by copious diuresis, for which acetate and nitrate of potash may be prescribed. To prevent the congestion from degenerating into inflammation and ulceration, irritating food and medicine, strong alcoholic drinks, and even fermented liquors, must be avoided, and the diet must consist chiefly or exclusively of eggs, milk, and farinaceous articles. If there be much pain in the epigastrium, mustard poultices may be applied, and a few leeches to the anus. In cirrhosis of the liver it is better to avoid leeching, for the bleeding is liable to be too free.

Hæmatemesis, if present, must be treated as recommended below.

HÆMATEMESIS.—VOMITING OF BLOOD.

SYMPTOMS.—Vomiting of dark-colored clotted or grumous blood, in greater or less quantity, often mixed with food, and preceded by a sense of weight and obtuse pain in the region of the stomach. If the oozing be slow, the countenance becomes blanched; but if rapid and considerable, the patient becomes pale, faint, and sick, and the vomited blood may be bright-colored. In hepatic disease the complexion is sallow, and the conjunctiva tinged with bile. Melæna often co-exists.

CAUSES.—Those of congestion of the stomach; ulcer of the stomach; rupture of an aneurismal tumor into the stomach.

MORBID ANATOMY.—Congestion, ulcers, or malignant diseases of the stomach; congestion or chronic disease of the liver.

DIAGNOSIS.—The blood is vomited, and not coughed up as in *hæmoptysis*. In *hæmoptysis* the blood is usually bright, in *hæmatemesis* commonly dark, often grumous, and, being altered by the action of gastric juice, like coffee grounds. Food may also be present. But in certain rare cases, the diagnosis of the source of the hæmorrhage is not easy. If, for example, an ulcer of the stomach erode a large arterial trunk, the blood vomited may be fluid and scarlet. Again, the blood in *hæmoptysis* may come up into the mouth without the effort of coughing, so as to seem to be vomited rather than coughed up. It may also be unmixed with sputa; and when discharged from old cavities of the lungs, may have lost its bright vermilion hue. But the discharge of a very large quantity, such as a pint, or a quart, of dark grumous blood, even though unmixed with food, may be held to be conclusive of its having come from the stomach; for when such large quantities are expelled from the lungs, the blood is always of a bright scarlet color. The state of the liver and lungs will serve to confirm the diagnosis.

TREATMENT.—Rest, abstinence from all food for some hours, and afterwards, for many days, only unirritating slops.

When the hæmorrhage is excessive, the patient may be made to drink freely of iced water, or to swallow rough ice, and an ice bag may be applied to the pit of the stomach. The vegetable and mineral astringents (Form. 158). When the hæmorrhage has been stayed, gr. v. pilulæ hydrargyri, followed by a saline aperient, should be given, and the disease subsequently treated according to its cause.

If there be suppression of the hæmorrhoidal or catamenial flux, leeches should be applied to the anus or vulva.

GASTRITIS.—INFLAMMATION OF THE STOMACH.

1. ACUTE GASTRITIS.

SYMPTOMS.—An acute fixed pain and sense of burning heat in the pit of the stomach, increased by pressure, deglutition, and the movements of respiration; frequent vomiting of clear viscid mucus streaked or not with blood, attended with increase of pain: intense thirst; great restlessness, and extreme anxiety; the tongue red; the pulse quick, small, and hard; the bowels confined.

The disease generally extends to the gullet and intestines, and is attended by pain and dysphagia, diarrhœa, and abdominal tenderness.

TERMINATIONS.—*In resolution*, when the pulse becomes more soft and full, and the other symptoms gradually disappear. *In chronic gastritis*. *In gangrene*, marked by a violent exacerbation of the symptoms, followed by a sudden cessation of pain, a rapid and intermitting pulse, the utmost prostration of strength, cold extremities, delirium, hiccough,

and death. *In perforation*, characterized by sudden and acute pain, with extreme prostration, and symptoms of peritonitis.

CAUSES.—Drinking ardent spirits or hot water; irritant poisons, and indigestible diet. Idiopathic acute gastritis is exceedingly rare. Prolonged abstinence from food. The gouty excitant in the blood.

DIAGNOSIS.—From *enteritis*, by the epigastric heat, tenderness, and pain, and by the more severe vomiting.

PROGNOSIS.—*Favorable*. The pulse becoming softer, fuller, and less frequent: and the pain and tenderness gradually ceasing.—*Unfavorable*. No alleviation of symptoms. Extreme and general tenderness of the abdomen. Symptoms marking the accession of gangrene or perforation.

MORBID ANATOMY.—The mucous membrane of the stomach red, universally or in patches, especially around the cardia and pylorus; deep redness of the rugæ; abrasion, ulceration, or “hæmorrhagic erosions,” occurring as brown or soot-black spots, in size from a pin’s head to a pea; or softening of the membrane; gangrene; also dark patches resembling gangrene, but arising from the effusion of blood into the sub-mucous cellular tissue; the blood-vessels full of dark blood. Gangrene and ulceration are rare, but softening is common.

TREATMENT.—I. Six to twelve leeches to the pit of the stomach, and iced water or ice, externally and internally. Free action of the bowels in the absence of diarrhœa, by the use of emollient clysters. The free and frequent use of mucilaginous diluents, such as gruel, linseed-tea, or barley-water.

II. The sickness, restlessness, and pain are best relieved by soda-water and small doses of dilute hydrocyanic acid (℥iii. to ℥v.) combined with opium.

2. SUB-ACUTE GASTRITIS.—DYSPEPSIA.—INDIGESTION.

SYMPTOMS.—Anorexia; nausea; flatulence; heartburn; occasional pain in the epigastrium; sick headache; a sense of fulness and oppression after eating, or a feeling of languor and depression relieved by taking food. These symptoms, variously combined, and generally accompanied by constipation, diarrhœa, or the two conditions alternately, and with defective or immoderate secretion of bile, constitute the most common form of dyspepsia. A dry cough; cold extremities; headache; furred tongue; with red prominent papillæ; a bitter taste; dimness of vision; bright spots before the eyes; palpitation; shooting or fixed pains in the region of the heart, and under the scapulæ, varying with the degree of flatulence, are occasional consequences of dyspepsia. In the more severe cases the epigastric pain is considerable, and is increased by pressure and by food. Sometimes the smallest quantity of food gives pain, and is rejected as soon as it is swallowed, or after a short interval. Pain in the stomach (*gastralgia*) may be produced by flatulent distention, and by the presence of hard indigestible food, or of excess of acid. When the

pylorus contracts upon masses of hard undigested food as it is passing into the intestines, violent crampy pain in the epigastrium is produced.

CAUSES.—*Predisposing.* Debility; want of exercise; depressing passions; amenorrhæa; imperfect mastication; irregular intervals between meals; the abuse of drastic purgatives; close study, or exercise immediately after food; diseases of the liver, pancreas, or spleen; the gouty diathesis. Dyspepsia is a frequent precursor of phthisis, and a common accompaniment of asthma or bronchitis.—*Exciting.* Inactivity of the liver producing constipation; unwholesome and indigestible food; the abuse of spirituous liquors, especially at the dinner-table; liquids in excess, especially hot tea and coffee.

DIAGNOSIS.—From ulcer of the stomach, by the absence of a fixed and limited seat of pain, and of hæmatemesis or melæna.

TREATMENT.—*Indications.* I. To correct bad habits, and to regulate the diet. II. To restore the stomach to a healthy condition. III. To palliate urgent symptoms.

The habits which commonly require correction are the following:—Eating too much at one time; eating too often or too seldom; taking too great a variety of food at the same meal; drinking too much liquid before or with the meals; imperfect mastication; resuming bodily or mental occupation directly after eating; indolent and sedentary habits; the injudicious use of purgatives; drinking, smoking, chewing tobacco, opium-eating, and tea and coffee in excess. If any particular article of food seem to disagree, it should be carefully avoided. Flatulence is frequently increased by green vegetables and fruit. Wine and ale will sometimes require to be exchanged for weak brandy and water, or for brandy with soda-water, or Seltzer water.

II. A regular action of the bowels should be secured by mild cholagogue purgatives. Stomachic tonics (gentian, calumba, cascarilla, cinchona), combined, according to the state of the secretions, with alkalies or the mineral acids, should be persevered in. In mild cases a few grains of compound rhubarb-pill may be given as a dinner-pill.

III. If there be tenderness, half a dozen leeches or a mustard poultice may be applied to the epigastrium. *Acidi hydrocyanici diluti*, ℥v., tincture opii, ℥v., given in effervescence, with a few grains of carbonate of soda and citric acid will generally allay the vomiting. The diarrhœa will usually yield to a few doses of the *pulvis cretæ aromaticus cum opio*.

An acute attack of indigestion is best treated by an emetic, followed by rest and an aloetic purge.

ULCER OF THE STOMACH.

SYMPTOMS.—Pain in the pit of the stomach, referred to a small spot, coming on immediately or soon after food, continuing for an hour or two, and then slowly abating as the stomach becomes empty. Pressure usually

gives rise to a slight feeling of uneasiness in some part of the epigastrium, sometimes accompanied by a like sensation in the corresponding part of the back. It is increased by indigestible food, hot fluids, and alcoholic liquids, and in young females on the approach of the menstrual period. There is nausea and vomiting of food, of a clear, sour liquid, of bile, or of blood. Sometimes the blood is discharged by the bowels, which are generally constipated. The patient loses flesh, has an unhealthy aspect, and wears an expression of weariness and suffering.

Usually the disease causes very little constitutional disturbance, and in some cases the local symptoms are so slight, that severe hæmatemesis, or even perforation of the stomach, may be the first indication of its existence. In some instances the process of ulceration is rapid, and perforation may occur within a few weeks of the formation of the ulcer. In other cases the ulcer remains open for many years, giving rise to its ordinary symptoms, and now and then to an alarming hæmorrhage; and at last leads to perforation.

TERMINATIONS.—In recovery; in perforation (see p. 146); by hæmorrhage and fatal syncope, or collapse; by marasmus from constant vomiting.

CAUSES.—*Predisposing.* The female sex; intemperance; fatigue; anxiety. The influence of age may be thus briefly stated:—From 16 to 20 years of age, 20 cases; for each decade from 20 to 60, about 50 cases; for the two decades from 60 to 80, about 80 cases; and for the ten years from 80 to 90, 100 cases. In this country it is most frequent in female cooks.—*Exciting.* Obscure; probably raw spirit.

DIAGNOSIS.—From *dyspepsia*, *sub-acute gastritis*, *pyrosis*, and *gastralgia*, by the limited pain on pressure in the epigastrium; by the pain in the back, the more frequent vomiting, and the discharge of blood; from *cancer* of the stomach, by the absence of the marked cancerous diathesis, the lancinating pain, the hard and movable tumor in the pit of the stomach, the less abundant hæmorrhage, and the presence of cancer-cells in the vomit. The diagnosis of ulcer of the stomach is often difficult and uncertain.

PROGNOSIS.—Favorable but guarded. Most guarded with young females in whom perforation is a common event. About one in five cases prove fatal in one of the ways mentioned above.

MORBID ANATOMY.—Of 10,203 bodies examined in the hospital at Prague, there were 126 open ulcers, and 224 cicatrices of the stomach and duodenum, = 3.4 per cent. In more than a third of the cases the ulcer occupies the posterior surface of the stomach; and in more than three-fourths the posterior surface, the lesser curvature, or neighborhood of the pylorus. In about one-fifth of the cases there is more than one ulcer, and there may be two, three, four, five, or more. "The ulcer is rarely much smaller than a four-penny piece, or larger than a crown piece, but it may attain a diameter of five or six inches. Its shape is usually

round or oval, and it presents the appearance of a shallow but level pit, with a sharp, smooth, vertical edge, as though it had been punched out" (Brinton); but as the circular opening in the sub-mucous areolar tissue is smaller, and the aperture in the peritoneum, if the ulcer perforate, still more minute, the ulcer has a conical form. The surrounding mucous membrane and areolar tissue are somewhat thickened, and sometimes inflamed. Perforation takes place in about 1 case in 8; this result being often prevented by adhesion to the pancreas, liver, spleen, mesentery, or diaphragm.

In attributing death to ulceration of the stomach, it is important to be aware of the fact that, under certain circumstances, the coats of the stomach undergo *self-digestion*, resulting in pulpy or gelatinous softening, irregular abrasion, and even perforation. The mucous membrane is converted into a thin, pasty, mucous layer; the blood-vessels are blackened; and if all the coats of the stomach are removed, a ragged aperture results, through which the contents of the stomach escape. This self-digestion is due to the action of the gastric juice; it is met with in those who have died suddenly during digestion, and in those who have died from disease (such as phthisis), in which chronic irritation of the vagus nerve had induced excessive secretion of gastric juice.

TREATMENT.—I. We must try to promote the healing of the ulcer, by preventing irritation or distention of the stomach. With this view the diet must be strictly regulated. Solid food must be rigidly avoided, and its place supplied by milk, eggs in the form of emulsion, light broths, and farinaceous diet, given at short intervals, and in quantities not exceeding a teacupful. Spirituous liquors and hot fluids should be forbidden.

II. If there be much *tenderness on pressure*, mustard poultices or blisters should be used; if constant *pain*, solid opium may be given; if *gastrodyne* and *pyrosis*, nitrate of bismuth; if distressing *vomiting*, hydrocyanic acid, and farinaceous food in small quantities often repeated; if *vomiting of blood*, ice, and the remedies recommended under hæmatemesis; if *constipation*, castor oil is the most suitable aperient; if *diarrhæa*, compound kino powder.

III. If the patient be *anæmic*, the preparations of iron, of which the ammonio-citrate is most suitable. (In this disease it may be given dissolved in glycerin.) If there be much debility present, the citrate of iron and quinine in glycerin is to be preferred. In intemperate persons, full doses of opium are indicated.

PERFORATION OF THE STOMACH.

SYMPTOMS.—After a longer or shorter duration of symptoms of ulcer of the stomach, intense pain in the epigastrium occurring suddenly, spreading rapidly over the whole abdomen, and soon followed by tym-

panites and collapse. The disease assumes all the characters of peritonitis, and usually proves fatal in from twenty-four to thirty-six hours; but in some cases the fatal event is postponed in consequence of the peritonitis being limited in extent, or sub-acute in character. In most cases the rupture takes place during the distention of the stomach by a full meal, but it is sometimes caused by vomiting, straining at stool, coughing, or sneezing; by pressure, shocks, or blows.

TERMINATIONS.—In acute peritonitis and rapid death; in chronic peritonitis, and death after a longer interval; in abscess of organs bordering on the stomach; in gastric fistula.

CAUSES.—*Predisposing.* Those of the gastric ulcer. The female sex from the fifteenth to the twenty-fifth year.—*Exciting.* Gastric ulcer; irritant poisons.

DIAGNOSIS.—From ordinary peritonitis by the sudden attack.

PROGNOSIS.—In the highest degree unfavorable, especially when the perforation takes place after a full meal.

TREATMENT.—The patient should be placed in the recumbent posture at perfect rest. A full dose of opium should be given every three or four hours. Complete abstinence from food must be enjoined, the patient being allowed merely to moisten the mouth from time to time. If the inflammation run high, leeches should be applied to the abdomen, followed by hot simple fomentations. The lower bowel should be relieved by enemata, and nourishment be supplied by the same channel. Should the patient survive the immediate consequences of the rupture, milk and farinaceous food must be given by the spoonful at short intervals, and a return to the usual diet must be made slowly and cautiously. When convalescent, castor oil should be used as an aperient.

CARCINOMA.—CANCER OF THE STOMACH.

SYMPTOMS.—In the early stage the symptoms are very obscure. They are usually those of dyspepsia (sub-acute gastritis). But, after a longer or shorter interval, during which the patient loses flesh, and obtains little or no relief from his dyspeptic symptoms, a circumscribed tumor may be discovered in the epigastrium, and now the pain becomes burning, gnawing, or lancinating; and there are nausea, acid and foetid eructations, with vomiting of ingesta, mucus, blood, or a dark grumous or sour frothy matter containing sarcinae (Fig. 78, p. 149); complete constipation, and retraction of the belly, which becomes hard and flat; great emaciation, and the cancerous complexion and expression.

When the cancer involves the pylorus, as is most frequently the case, the passage of food into the intestine is impeded; it accumulates in the stomach, which becomes enormously dilated, ferments, and is discharged at intervals of 24 or 48 hours by copious vomiting.

MORBID ANATOMY.—The disease may take the form of scirrhus, or of medullary or colloid cancer. But the most common form is scirrhus, and its usual seat the pylorus. Forms of cancer cells are given Vol. I., p. 73, Fig. 10. The stomach is generally contracted when the disease occupies the cardiac end; greatly expanded and hypertrophied when the pylorus is affected.

DIAGNOSIS.—An epigastric tumor can occasionally be felt. Lancinating pain; constipation and retraction of the abdomen; cachexy and emaciation; persistent vomiting of decomposed food; and the rapid progress of the malady, serve to identify this disease. Cancer rarely occurs before forty. The part of the stomach attacked may be generally inferred from the symptoms. When the cardia is affected there is obstruction to the entrance of food, the pain and vomiting come on immediately after taking food; when the pylorus is attacked, there is obstruction to the exit of chyme, and pain and vomiting come on later.

CAUSES.—*Predisposing.* The cancerous diathesis.—*Exciting.* Chronic dyspepsia, and any irritation of the stomach.

TREATMENT.—A bland and nourishing diet, such as new milk; gruel; milk with arrowroot; strong soups, thickened with vermicelli; jellies, and light farinaceous puddings; and tripe boiled in milk. The food to be taken often, and in very small quantities. Excessive acidity may be checked by combining lime-water or bicarbonate of soda with the milk. Nutritive enemata may be given once or twice a day; and cod-liver oil rubbed into the abdomen. Narcotics and anodynes to allay pain; an occasional blister; anodyne plasters, fomentations and embrocations externally; and rest.

OTHER FORMS OF STOMACH DISORDER.

1. ATONY OF THE STOMACH.—ATONIC DYSPEPSIA.

SYMPTOMS.—Anorexia and slowness of digestion, with occasional severe crampy or spasmodic pain some hours after meals, due to the presence of undigested food and its passage through the pylorus. Headache, flushing after meals, and other symptoms of dyspepsia are occasionally added.

CAUSE.—Defective secretion of gastric fluid.

TREATMENT.—Brisk exercise and the avoidance of sedentary occupations and excessive mental labor and anxiety. A light nutritious diet, taken in small quantities and often. The use of salt, mustard, pepper, a pill composed of gr. v. each of mastic or myrrh and extract of rhubarb taken daily half an hour before dinner, or a carminative tonic (Form. 243). In many cases the mineral acids are of much service (Form. 122), in some, small doses of ipecacuanha.

2. PYROSIS.—WATER-BRASH.

SYMPTOMS.—In the morning or forenoon, two or three hours after a

meal, when the stomach is empty, pain and tension at the pit of the stomach, lasting some time, and followed by vomiting of a thin watery fluid, in considerable quantity, sometimes acid, but often insipid. This generally relieves the pain, and puts an end to the attack. It may occur only occasionally, or last, with intermissions, for years. The fluid, which may vary from an ounce to a pint or more, is rejected by a sort of rumination and not by ordinary vomiting.

CAUSES.—*Predisposing.* Middle age. The female sex.—*Exciting.* Reflex irritation of the abdominal and pelvic viscera, especially the uterus. Hence pyrosis is common in pregnancy. A poor diet.

TREATMENT.—Improve the diet, and avoid an undue proportion of farinaceous substances. If the liquor ejected from the stomach be highly acid, alkalies (Form. 123), or bismuth (Form. 75). In other cases the vegetable astringents in combination with opium such as gr. x. pulveris kino compositi.

3. EXCESSIVE FORMATION OF LACTIC ACID IN THE STOMACH.

SYMPTOMS and TREATMENT.—“This disorder is most common in nervous persons with feeble digestion, in whom it not unfrequently happens that acid collects in great quantities after meals. They often familiarly



Fig. 78.

tell us that almost everything they eat turns to an acid.” (Budd.) Severe heartburn comes on soon after eating, to be relieved after two or three hours by vomiting of very sour fluid, the acidity being due to lactic acid produced by conversion of the starchy constituents of food into that compound. The alkalies afford temporary relief; and the mineral acids more lasting benefit.

4. FORMATION OF ACETIC ACID BY FERMENTATION OF THE SACCHARINE CONSTITUENTS OF THE FOOD.

SYMPTOMS.—Heartburn, pain in the stomach, and sour eructations after meals; and eventually vomiting of sour frothy fluid containing much acetic acid with or without a little alcohol. Very frequently it is associated with the development of the peculiar vegetable organisms which have been called by Goodsir *sarcina ventriculi* (Fig. 78). The sarcinae are found in a brownish scum on the surface of the vomited matters. They are often associated with the common yeast fungus, *Torula cerevisiae* (Fig. 30, Vol. I., p. 125).

TREATMENT.—This form of stomach disease is often very obstinate, and may continue, with greater or less severity, for years. Alkalies only give temporary relief. The fermentative process may be prevented by kreasote given in ii. or iii. ℥ doses in the form of pill, thrice a day. Sulphurous acid is still more effectual; it may be given in 3 ss. doses diluted with a little peppermint-water twice or thrice a day.

5. SYMPATHETIC VOMITING.

CAUSES.—Sympathetic disorder of the stomach resulting in vomiting may be produced by irritation of the brain, lungs, liver, intestines, kidneys and ureters, uterus and ovaries. That cerebral and uterine irritation are most prone to induce it, is seen in cerebral concussion and in pregnancy.

When the irritation is prolonged, reflex vomiting becomes a constant and distressing symptom. In the latter stage of tubercular disease of the lungs the irritation leads to the secretion of much sour fluid.

The treatment must be directed to remove the source of the irritation. In the vomiting associated with phthisis, the alkalies and subnitrate of bismuth, combined with hydrocyanic acid and the vegetable astringents, are of much service. In other cases, such as the passage of a gall-stone, large doses of opium, in the solid form, may be required.

DISEASES OF THE INTESTINES.

ENTERITIS	Inflammation of the Intestines.
DYSENTERIA	Dysentery.
DIARRHŒA	Looseness of the Bowels.
MELÆNA	Hæmorrhage from the Bowels.
TORPOR INTESTINORUM . .	Constipation.
OBSTRUCTIO INTESTINORUM	Obstruction of the Bowels.
INTUS-SUSCEPTIO	Invagination of the Bowels.
COLICA	Colic.
COLICA PICTONUM	Painter's Colic.
TYMPANITES	Drum Belly.
HÆMORRHOIDS	Piles.

ENTERITIS.

DEFINITION.—Inflammation of the mucous membrane of the small intestine.

1. GENERAL ENTERITIS.

SYNONYMS.—*Enteria. Enteritis erythematoides. Diarrhœa mucosa, or catarrhosa.*

SYMPTOMS.—At first, chilliness or slight rigor; nausea and loss of appetite; if the duodenum be especially affected, vomiting; thirst; a

white furred tongue with prominent papillæ and a red tip; heat and soreness in the belly, but chiefly about the epigastrium and umbilicus; a dull diffused pain on pressure; and frequent diarrhœa. The nature of the evacuations depends on the cause of irritation. They are always fluid; contain at first much undigested matter, but after a time watery mucus occasionally streaked with blood. After the diarrhœa has lasted some hours, the intestine is liable to become distended with flatus, causing gurgling and griping pain.

Unless the patient be judiciously treated, these symptoms may continue for several days or even weeks, to the serious impairment of his health.

CAUSES.—Imperfect stomach digestion; the passage of vitiated or imperfectly formed chyme into the intestine. A vitiated condition of the bile. Drastic purgatives:—the symptoms of enteritis may be well studied in the effects produced by a large dose of jalap. Mineral poisons, such as arsenic, antimony, and corrosive sublimate. Exposure to cold inducing congestion of the internal organs.

TREATMENT.—Warmth to the surface; rest of the inflamed part, by quietude, light diet, such as may be digested in the stomach, or, if passed into the intestine, cannot irritate the inflamed surface. Eggs, milk, beef-tea, arrowroot, answer to this description. Milk and arrowroot, mixed, if the patient be weak, with a little brandy, is generally the most appropriate food. The inflammation and its most prominent symptom diarrhœa, will be relieved by Form. 148, 83. Hot fomentations, or stimulant poultices, may be simultaneously applied to the abdomen. If diarrhœa persist, and the evacuations be bloody, the treatment proper to dysentery is indicated.

2. PARTIAL ENTERITIS.

This disease is caused by specific inflammation of the glands of the small intestine. The solitary and agminated glands are invariably affected in enteric fever (see Vol. I., p. 278). They also frequently become the seat of tubercular deposit, inducing local inflammation and subsequent ulceration. The symptoms of tubercular ulceration of the small intestine resemble those of well-marked ulceration in enteric fever—viz., fever, persistent purging, light-colored watery stools, griping pain in the abdomen, gurgling and tenderness about the right iliac fossa. In both diseases hæmorrhage to an alarming extent is liable to occur. The general treatment is the same in both diseases. Bismuth (Form. 75) is very serviceable in the diarrhœa of phthisis.

MORBID ANATOMY.—Of the ulceration of enteric fever (see Vol. I., p. 278). Of tubercular ulceration of the intestine:—Large patches of ulceration throughout the ileum, separated by intervals of four or six inches, commencing as small round discrete ulcers at the upper part of the bowel, gradually become confluent below into large irregular patches, extending

round the whole circumference of the canal. From a description of a single ulcer the appearance of all may be inferred:—Ulcer irregularly circular, limited by a thick, round, elevated, angry-looking border; within, the margin is irregular and continuous, with less distinct granulations, between which little yellow masses of tubercular deposit, firmly attached to the base of the ulcer, may sometimes be seen; the contiguous parts of the intestinal wall are much thickened, so that on spreading the ulcerated bowel on a flat surface, the patches form considerable elevations. Some of the ulcers extend quite down to the peritoneal coat. Their position is known before opening the intestine, by corresponding vascularity of the peritoneum, and a feeling of irregular thickening.

DYSENTERIA.—COLITIS.—DYSENTERY.—BLOODY FLUX.

DEFINITION.—A specific inflammation of the mucous membrane of the colon; accompanied by tenesmus, and by mucous, bloody, or purulent stools.

SYMPTOMS.—At first cold shiverings, followed by fever; or bilious diarrhoea, which after continuing for a few days, without causing much pain or uneasiness, becomes an incessant flux, with discharge of pure blood, of mucus, or of a white glairy matter, like white of egg, mixed with blood. Masses of indurated fæces often form part of the discharges. At the same time there are severe griping pains in the abdomen; frequent inclination to go to stool; tenesmus; dysuria; and cramps in the thighs. The patient is restless, sleepless, and anxious. The pulse is quick and hard, the tongue clean, the skin warm and moist, the face flushed, and the eye bright.

In this, the first stage of dysentery, the disease sometimes proves fatal by collapse; but it more commonly assumes the chronic form, the purging becomes persistent, pus and blood appear in variable quantity in the stools, which are semifluid and pultaceous, mixed with shreds of lymph, and excessively offensive.

Under appropriate treatment the blood and pus disappear, the motions become more healthy, the diarrhoea decreases, and after some months the patient recovers. But recovery is in many cases very slow, and in many more incomplete, and the purging sets in again and again on exposure to cold, or after improper food. The patient preserves a good appetite, and does not lose flesh; but if, as is sometimes the case, the disease involve the ileum also, emaciation, in proportion to the extent of surface affected, results.

COMPLICATIONS.—The disease may accompany, precede, or follow ague, or remittent fever, and land or sea scurvy; and it may be complicated with inflammation of the liver, spleen, or pancreas.

TERMINATIONS.—In incessant vomiting; in aphthous inflammation

of the mouth; in abscess of the liver; in ascites; in fatal hæmorrhage; in perforation of the intestine; in gangrene; in collapse.

MORBID ANATOMY.—In the *acute stage*, the mucous membrane of the colon inflamed in patches of a deep red color, or throughout its whole extent; sometimes black, as if gangrenous, sometimes softened. The intestine itself contracted. The follicles enlarged and transparent, or hard and opaque. In the *advanced stage* of the disease, small round ulcers, which commence in the first instance in the solitary glands, thence spread, and subsequently (becoming confluent) form large ragged patches. The neighboring tissues are much thickened. In some cases, similar appearances in the lower part of the small intestines, and occasionally even in the stomach. The mesenteric glands often red, swollen, and soft. The intestines, in the early stage, contain mucus, blood, and a watery lymph; in the advanced stages, pus mixed with blood.

In cases of long-standing disease the ulcers are found contracted and surrounded by tissue of almost cartilaginous hardness. Tough cicatrices mark the position of ulcers which have ultimately healed.

A large majority of the fatal cases of dysentery present abscess in the liver. The purulent deposits in this organ may be due to concomitant hepatitis, or (as Dr. Budd has suggested) the pus may be derived from the ulcerated intestine (see Pyæmia).

CAUSES.—*Predisposing.* A high temperature. Unwholesome food, especially salt meat and unripe fruit; fatigue, privation, and exposure. Intemperance.—*Exciting.* Marsh miasma; impure water; exposure to wet and cold, especially at night after a hot day. A debauch.

DURATION.—From a few days to several weeks, months, or years.

MORTALITY.—In acute dysentery from 1 in 8 to 1 in 50; in chronic dysentery, from 1 in 4 to 1 in 6.

DIAGNOSIS.—From inflammation and ulceration of the small intestines; by the absence of anorexia, vomiting and emaciation. From ordinary diarrhœa; by the presence of sloughy membrane, blood, and pus, and by the persistence of the purging.

PROGNOSIS.—*Favorable.* Moderate diarrhœa, and the absence of hectic. *Unfavorable.*—Violent and distressing tenesmus and tormina; vomiting; hiccough; cold extremities; cold and partial sweats; the tongue præternaturally red and dry; great prostration; the motions extremely fœtid; petechiæ; involuntary evacuations; intermitting pulse, complications with diseases of the liver, and intermittent or remittent fever.

TREATMENT.—In the *acute stage*. It is of the first importance to free the bowels of irritant matter, and with this view simple enemata and one or two doses of castor oil with ℞. tincturæ opii should be prescribed. Simultaneously we may use the hot bath; leeches to the anus or to the tender spots of the abdomen, followed by hot fomentations, turpentine stupes, or mustard poultices.

At the same time a diet should be prescribed free from solid ingredi-

ents, but more or less nourishing according to the state of the patient, with an allowance of port wine in cases of great debility. Tender spots in the abdomen should be treated with a few leeches followed by warm fomentations: and tenesmus and dysuria by suppositories of the compound soap-pill, or small injections of gruel, containing laudanum. From the favorable effect of nitrate of potash in doses of ten grains frequently repeated in a very troublesome and intractable form of diarrhœa, I should be disposed to recommend ten grains of this salt with a grain of opium and a grain of ipecacuanha three or four times a day. (G.)

Chronic dysentery is a most intractable disease; a fact explained by the pathological condition of the diseased intestine. Alterations in the calibre of the intestine and the passage of undigested food, or of irritating fluids, are sufficient to prevent the ulcers from healing. The diet must therefore consist of bread, eggs, and milk; and such other food as will leave no indigestible residue. Vegetables must be prohibited, except when the dysentery is complicated with scurvy.

The diarrhœa will only yield to the mineral astringents, of which sulphate of copper, in $\frac{1}{2}$ grain doses, combined with $\frac{1}{4}$ grain of powdered opium, is the most effectual. The bowels should be washed out every day with a cold-water clyster.

PROPHYLAXIS.—Pure water, warm and dry clothing; cleanliness; a mixed and wholesome diet; avoidance of exposure to wet, cold, and fatigue; in the case of armies, a frequent change of the site of the camp.

DIARRHŒA.—LOOSENESS, OR PURGING.

DEFINITION.—Frequent discharges of semi-solid, or fluid-stools, with more or less gastro-intestinal irritation.

VARIETIES.—1. Intestinal dyspepsia. 2. Biliary diarrhœa. 3. Mucous diarrhœa. 4. Serous diarrhœa. 5. Diarrhœa with fibrinous exudation. 6. Sympathetic diarrhœa.

The *first form* is very common in the autumn and latter part of summer. It is due mainly to the high temperature, but may be caused or increased by excess in fruits, and in such vegetables as the cucumber and melon. The treatment consists in the removal of the offending matter by a full dose of castor oil, combined, if there be much griping, with ℞. or xv. of tincture of opium.

Biliary Diarrhœa is very common in the European inhabitants of tropical climates. It is caused by the use of a larger quantity of animal food than is required in hot climates, under which circumstances the diminished respiratory function is compensated by the elimination of the hydro-carbonaceous constituents of the bile in excessive quantities. (See Biliary Congestion.) The secretion is rapidly poured out into the duodenum, and sets up bilious diarrhœa.

The treatment consists: 1. In relieving the distended condition of the liver, by allowing the diarrhœa to continue unchecked for a time. If there be pain, gr. xv.-xx. of bicarbonate of soda may be given in combination with ℥v.-x. of tincture of opium.—2. By adapting the diet to the altered conditions of existence, substituting vegetables and ripe fruits for animal food, and avoiding the use of spirituous liquors.

Mucous Diarrhœa, or intestinal catarrh, sometimes co-exists with and sometimes follows upon, catarrh of the bronchial mucous membrane. The slightest exposure to cold and damp will induce it in many delicate people. It is this form which accompanies enteritis and the acute stage of dysentery.

The appropriate remedies are sulphuric acid, and the vegetable astringents, such as catechu and gallic acid, together with the general treatment recommended in enteritis.

Serous or watery diarrhœa often occurs spontaneously in ascites and general dropsy, in which conditions it appears to be a natural curvative process, caused by the direct exudation of the watery constituents of the blood from the congested membrane. It should therefore be encouraged, and only controlled when excessive by the vegetable astringents. This form of diarrhœa follows the administration of the hydragogue purgatives. Sometimes it alternates with profuse perspiration, as in colliquative diarrhœa. In Asiatic Cholera it occurs to an intense degree.

Fibrinous diarrhœa is very rare. The discharges in the form of shreds or tubular membranes, resemble those of croup, or of plastic bronchitis. In the treatment the astringent mineral salts are very serviceable.

Sympathetic diarrhœa.—In place of morning sickness, many women experience diarrhœa during the early months of pregnancy. It frequently occurs in children during teething; emotional excitement quickly induces it in persons of nervous temperament. It readily yields to small doses of opium.

From the foregoing it appears that there is no single treatment for diarrhœa. Before prescribing remedies we ought, from the previous history, or from the nature of the evacuations, to determine the precise cause.

CAUSES.—Cold applied to the surface; suppressed perspiration; mental emotions; pregnancy; teething; the heat of the summer and autumn seasons; indigestible food; unripe fruits, or ripe fruits in excess; putrid substances; the abuse of active purgatives; previous constipation; worms; retrocedent gout or rheumatism; phthisis; enteric fever. Diarrhœa is a frequent precursor of Asiatic cholera; and it occasionally adds to the distress of sea-sickness.

MELÆNA.—HÆMORRHAGE FROM THE BOWELS.

DEFINITION.—The discharge from the bowels of dark colored, or more or less altered, blood, often in appearance resembling coffee grounds, tar, or blacking.

CAUSES.—Melæna is symptomatic of diseases of the liver, heart, and lungs, obstructing the general venous and portal circulations (see Hæmatemesis); of ulcer of the stomach, or duodenum; tubercular ulceration of the small intestine; enteric fever; dysentery; intussusception; or of rupture of an aneurismal sac into the bowel.

DIAGNOSIS.—From *hæmorrhoids* by the darker color and larger quantity of the blood, and by the absence of soreness and tenesmus.

TREATMENT.—That of the condition producing it. (See the several diseases above enumerated.)

TORPOR INTESTINORUM.—CONSTIPATION.

The causes of constipation are either structural or functional.

The *structural* causes either narrow the intestines or obliterate the passage. In the one case, purgative medicines act with difficulty; in the other case, action of the bowels is impossible.

Among the *functional* causes of constipation are the absence of stimulant matter from the diet, a deficiency of bile, want of proper exercise, spasmodic action, or paralysis of some part of the gut.

The *treatment* of constipation, due to alteration of function, will depend on the character of that alteration. If the food be deficient in indigestible or irritant matter, we must supply it by brown or whole meal bread, or ripe fruits; if the bile be wanting, we must stimulate the secretion of the liver by mercurial preparations in small doses; if the habits be sedentary, we must enjoin proper exercise. Where spasms exist, belladonna or henbane is very useful—a small dose of the extract every four hours.

Habitual constipation is best treated by rhubarb in powder or infusion (Form. 243). When the torpor of the bowels is still greater, and especially when there is a large accumulation of hardened fæces, purgative enemata are required (see Formulæ): aided by castor oil by the mouth.

A stream of cold water poured from a height on the abdomen has sometimes relieved obstinate constipation. Electricity is serviceable in some cases, one of the conductors being inserted within the rectum.

OBSTRUCTION OF THE BOWELS.

It sometimes happens that all our remedies fail to relieve the bowels. If, in such a case, there be tenderness in any particular part of the abdo-

men, accompanied by vomiting, we may be sure that there is obstruction, more or less complete, to the passage of fæcal matter, and it becomes a matter of the most urgent necessity to ascertain the cause and situation of the obstruction. The causes are:—

1. Strangulation or incarceration of a portion of intestine; a small knuckle of intestine may, after careful examination, be found at the femoral opening, or in the scrotum or labium, and no other symptom of hernia but constipation be present. The strangulation may be internal, and caused either by intussusception (see below), or by the entanglement of a portion of intestine in a band of the mesentery or in some old adhesion.

2. Fæcal accumulations, forming large, hard, dry masses, filling up the cells of the colon, are liable to form around biliary calculi, cherry and plum stones, and other foreign bodies. These accumulations feel like hard, irregular tumors, and may be mistaken for adventitious growths. Fæcal accumulations are very apt to form in the cæcum, where they often set up violent inflammation, with symptoms of complete obstruction. If the inflammatory symptoms be not subdued, perforation and pelvic abscess may result. The inflamed cæcum sometimes becomes adherent to the anterior abdominal wall, an abscess forms and points, and at length pus and fæcal matter discharge themselves through an opening communicating with the interior of the intestine.

3. Cancerous growths, chiefly of the rectum; and cicatrized ulcers of the bowel, are other causes of obstruction.

TREATMENT.—Reduce the hernia, and give a copious clyster of gruel. If the strangulation be internal, and the symptoms urgent, a careful diagnosis of the exact seat of strangulation should be made; the abdomen should be opened without delay, and the bowel disengaged. If the obstruction be due to accumulation in the cæcum and large intestines, copious castor oil or soap enemata should be thrown up, and hot fomentations simultaneously applied to the abdomen. If there be symptoms of inflammation, leeches must be freely applied over the inflamed part. The vomiting may be allayed by iced soda-water, and the pain by large doses of opium. When the scybala reach the rectum, it may be necessary to assist their discharge by a forceps or scoop. In cases of unrelieved obstruction, perforation is liable to occur.

It is important to distinguish simple constipation from the mechanical obstructions of the bowels mentioned above. (See Colic, p. 158.)

The symptoms and treatment of PERFORATION OF THE INTESTINES are the same as those of perforation of the stomach. (See p. 146.)

INTUSSUSCEPTIO.—INVAGINATION.

SYMPTOMS.—As a consequence of the action of strong purgatives, or after severe colic, a constant desire to go to stool, acute pain and tenes-

mus, discharge of blood, or of scanty bloody mucus, and the symptoms of enteritis. The existence of the disease becomes more probable after the failure of attempts to evacuate the bowels, and the supervention of hiccough and stercoraceous vomiting afford a strong probability of mechanical obstruction and a presumption in favor of this form of it.

MORBID ANATOMY.—One portion (from a few lines to more than a foot in length) of the intestines received within another. In most cases there is only one of these invaginations, but in some instances there are several. The most common seat of the obstruction is the junction of the small and large intestines; but it may take place in any part of the small intestines, and in the arch of the colon. A natural cure is sometimes affected by adhesion, suppuration, gangrene, and separation of the inclosed gut, the presence of which may be looked for in the stools.

DIAGNOSIS.—Sudden obstruction of the bowels, followed by a perceptible tumor in the abdomen, and the passage of blood, would give reason to suspect the existence of the disease. The discovery of a portion of the intestinal tube in the stool is conclusive.

PROGNOSIS.—Very unfavorable. In a few cases recovery takes place after sloughing of the constricted portion of intestine.

TREATMENT.—I. If there be marked tenderness in any part of the abdomen, leeches must be applied to the spot, followed by warm poultices, or hot fomentations.

II. The distressing vomiting is best relieved by iced soda-water. Solid opium, or its tincture, should also be given at short intervals, so as to moderate the pain and control the disordered peristaltic action.

III. To relieve the obstruction, a large quantity of warm water should be thrown up into the bowel by the long elastic tube; if this fail, air may be injected. After the failure of these attempts, the sac of the peritoneum may be opened, and the intestine unravelled.

COLICA.—COLIC.

DEFINITION.—Painful contraction and disordered peristaltic action from the presence of hard fæces or air, in the intestines.

SYMPTOMS.—Severe twisting pain in the abdomen, occurring in paroxysms; with retraction of the umbilicus and troublesome flatulence. The pain is relieved by pressure; the pulse is little, if at all, affected.

CAUSES.—The presence of undigested hard substances, such as unripe fruit and uncooked vegetables in the intestines; hardened fæces (scybala), or other accumulations; flatulent distention; obstruction of some part of the intestinal canal from impacted fæces; stricture or strangulation; worms; certain metallic poisons; *e. g.*, lead.

DIAGNOSIS.—From *peritonitis*, by the peculiar twisting pain and retraction of the navel; by the absence of fever; and by the pain being alleviated by pressure.

Rheumatism of the abdominal muscles is distinguished at Vol. I., p. 335.

TREATMENT.—Having ascertained that there is no concomitant inflammation, and no mechanical obstruction, and that the pain is not merely muscular—the bowels should be freely relieved by a full dose of castor oil with ℥x. to ℥xv. of tincture of opium.

If the colic be due merely to flatulent distention give 3i. spiritus chloroformi with ℥ ss. tincturæ rhei co. and ℥x. tincturæ opii.

If there be symptoms of obstruction, we must avoid active purgatives, and trust to enemata. A large clyster of thin gruel containing ℥xx. of tincture of opium may be thrown into the bowel. Should the bowels continue unrelieved, and there are still no symptoms of inflammation, the patient should be kept under the influence of opium till a free evacuation takes place. Meanwhile, the pain may be relieved by applying flannels wrung out of hot water or poppy fomentation; or by steady pressure.

It is not unusual in cases of colic to find, on inquiry, that one of the first symptoms was the discharge of a quantity of gelatinous mucus from the bowels. In such cases there is commonly more or less tenderness in some part of the abdomen, especially in the right iliac fossa, and from six to twelve leeches, followed by a warm bread-and-water poultice, should be applied to the tender spot. (G.)

Flatulence may be relieved by the introduction of the long flexible tube, which may also be used to convey warm water into the gut.

In spite of the persevering employment of these means, six or seven days will sometimes elapse before the bowels are relieved. Patients commonly evince undue anxiety to obtain this relief, and aggravate the difficulty by the repetition of strong purgatives.

COLICA PICTONUM.—LEAD COLIC.

SYNONYMS.—Colic of Poitou. Painters' colic. Devonshire colic.

SYMPTOMS.—Those of colic from other causes, the pain generally coming on more gradually, and being often accompanied with pains in the limbs, or with weakness, or complete paralysis of the hands or forearms. The abdomen is generally retracted.

DIAGNOSIS.—From common colic, by the history of the case and the employment of the patient; and generally by the blue line along the margin of the gums indicating the presence of lead in the system.

PROGNOSIS.—Favorable. Five fatal cases in 500. (Andral.)

TREATMENT.—Sulphated aperients (Form. 244); enemata of warm water; hot fomentations or the warm bath. When the urgent symptoms have been relieved, iodide of potassium.

PROPHYLAXIS. (See Lead Palsy, p. 42.)

TYMPANITES.—METEORISMUS.—DRUM BELLY.

SYMPTOMS.—The abdomen distended, tense, elastic, and painful, and sounding, on percussion, like a drum. The air is, in almost all cases, contained in the stomach and intestines, its most common seat being the arch and sigmoid flexure of the colon. In very rare instances air passes into the sac of the peritoneum, in consequence of ulceration of the bowels. Tympanites is a painful symptom in severe cases of enteric fever, and in the latter stages of peritonitis.

CAUSES.—Loss of tone in the intestinal canal; indigestible food; abuse of purgatives; hysteria.

DIAGNOSIS.—From *ascites*, by the clear sound and absence of fluctuation.

TREATMENT.—In mild cases of flatulent distention of the bowels, the remedies usually resorted to are the peppermint lozenge, essence of ginger with hot water, or brandy and water swallowed as hot as it can be borne. In severe cases large doses of opium with 3 i. of spirit of chloroform, or iii.-v. drops of cajaput oil may be necessary. Stimulant enemata (Form. 64) often give great relief. If the distention be very great, it may often be relieved by the passage of a long wide elastic tube into the bowel. If this be ineffectual, and the movements of the diaphragm be dangerously impeded, the imprisoned air should be liberated by a capillary trocar thrust into the distended bowel.

The use of food known to occasion flatulence should be carefully avoided.

HÆMORRHOIDES.—THE PILES.

1. EXTERNAL PILES.

DEFINITION.—Small round tumors, situated at the verge of the anus, and covered with skin or mucous membrane, or painful folds of integument. The tumors either discharge blood, when they are called *bleeding piles*, or they do not bleed, when they are called *blind piles*. When free from pain they are called *indolent*.

SYMPTOMS.—When piles are in an inflamed state they occasion heat, itching, and pain, with a sense of weight and tension, increased upon going to stool, which generally occasions a discharge of blood. The inflammation sometimes runs on to suppuration. In mild cases piles appear and disappear, and are often absent for long periods of time.

2. INTERNAL PILES.

SYMPTOMS.—A sensation as of a foreign body in the rectum, with frequent desire to relieve the bowels, and painful strainings, accompanied by discharges of blood. In the more severe cases, dysuria, pain in the back and down the thighs, and, in females, uterine irritation.

CAUSES.—Luxurious and sedentary habits; habitual costiveness; plethora; hard riding; excesses of various kinds; the suppression of some habitual discharge; the frequent use of strong aloetic purgatives; varicose condition of the hæmorrhoidal veins; pregnancy.

PROGNOSIS.—The discharge of blood from piles is often salutary, especially in persons advanced in life, and their suppression may be followed by more serious hæmorrhage, such as apoplexy.

TREATMENT.—I. *General*. II. *Local*.

I. The circulation of blood through the abdominal vessels must be promoted, and the regular action of the bowels maintained by active exercise, abstemious living, and suitable aperients (Form. 239 and 242), confections of senna, pepper, and of sulphur, compound liquorice powder.

The *local* treatment consists in the strict observance of cleanliness, washing with cold water after each motion, and the careful return of the piles, if, being internal, they protrude during the evacuation of the bowels; in the use of astringent washes or ointments (such as the liq. plumbi subacetatis, or unguentum gallæ cum opio). When the piles are inflamed, the application of leeches, followed by cooling lotions.

Bleeding piles also require the use of cold astringent applications and injections. Daily injections of cold water are highly beneficial. When the hæmorrhage is profuse, astringents may be given internally. The best is the perchloride of iron. The hæmorrhage, when very profuse, must be treated by astringent injections of alum and tannic acid.

Piles strangulated by the spasm of the sphincter, must be compressed with the finger, and passed back; the operation being facilitated by the use of the warm bath and oil. A T-bandage may become necessary.

When the tumors become chronic they should be removed.

PROPHYLAXIS.—Patients with piles should sit and ride as little as possible, pursue their avocations, if inactive or literary, in an erect posture, and use cane-seated or wooden chairs.

DISEASES OF THE STOMACH AND INTESTINES.

GASTRO-ENTERITIS MUCOSA . . .	English Cholera.
CHOLERA MALIGNA	Asiatic Cholera.

GASTRO-ENTERITIS MUCOSA.—ENGLISH CHOLERA.

SYMPTOMS.—Nausea, pain, and distention of the stomach and intestines, succeeded by vomiting, and by purging of bilious or fæulent matter, and, when this has been discharged, of mucus. The tongue is furred; the pulse frequent, small, and sometimes unequal; and there is much thirst. In rare cases death takes place within twenty-four hours,

after hiccough, cold sweats, great anxiety, blueness of the surface, and painful cramps of the extremities.

CAUSES.—Excessive heat, or sudden transitions from heat to cold; the summer and autumnal seasons; indigestible food; unripe fruit, or an excessive quantity of ripe fruit; putrid meat; decayed vegetables; violent purgatives; irritant poisons; catarrh.

DIAGNOSIS.—From enteritis by the co-existence of gastric symptoms. The disease in its most severe form is not distinguishable from Asiatic cholera.

PROGNOSIS.—*Favorable.* Cessation of the vomiting, tendency to sleep, warmth and moisture of the skin. The disease, when protracted to the third or fourth day, seldom proves fatal.—*Unfavorable.* Painful cramps of the extremities; convulsions; great prostration; cold, clammy sweats; anxiety; short, hurried respiration; continual hiccough; intermitting pulse.

TREATMENT.—A farinaceous diet, and the entire exclusion of solid food. A scruple of the compound chalk and opium powder, or a mucilaginous mixture, with twenty drops of tincture of hyoscyamus, may be given three or four times a day. When there is great prostration of strength, full doses of opium, with stimulants, are indicated, with warmth to the surface, and mustard sinapisms to the extremities.

When the disease has subsided, the usual diet must be gradually resumed, and tonic medicines given if there be much debility.

CHOLERA MALIGNA—ASIATIC CHOLERA.

SYNONYMS.—Cholera morbus; epidemic, spasmodic, Indian, Asiatic, blue, and pestilential cholera. Cholerine—a diminutive term. Cholera asphyxia—a term indicative of the state of collapse in fatal cases.

DEFINITION.—An epidemic malady characterized by profuse vomiting and purging with symptoms of collapse allied to asphyxia.

SYMPTOMS.—In a few cases (rarely seen out of India), the attack is sudden; the patient vomits once or twice, or passes one or two loose motions, complains of giddiness, blindness, or deafness, falls down, and expires in a few minutes. In another and larger class of cases the disease shows itself after two or three days of slight indisposition, with depression of spirits, loss of appetite, oppression at the præcordia, rumbling in the bowels, giddiness, noise in the ears, and twitchings in the limbs. In a still larger class the fully-formed disease sets in after a preliminary attack of diarrhœa of some hours' or days' continuance.

In the majority of cases, both in India and in England, the following is the order of the symptoms: after a preliminary attack of diarrhœa, of greater or less severity, and lasting for some hours or days, the patient is seized with symptoms of collapse, accompanied, in most cases, by vomit-

ing. The acts of vomiting and purging are generally unattended by pain or tenderness in the abdomen; and the matters rejected from the stomach and bowels are free from bile and colorless, have a faint, fishy smell, and resemble yeast; or they consist of a thin colorless serum, or bear a close resemblance to rice water, being familiarly known as "*rice-water evacuations*." Sometimes they have a pink color, or the deeper hue of port wine. Severe and painful cramps commence in the fingers and toes, and rapidly extend to the calves of the legs, to the thighs, and muscles of the abdomen; the eyes are sunk, and surrounded by a dark circle; the features contracted and sharpened; the expression indifferent and apathetic; the face, extremities, and sometimes the whole surface of the body, assume a leaden, bluish, or purple hue; the limbs are shrunk and contracted; the nails blue; the hands clammy and sodden; the surface covered with a profuse cold sweat; the pulse thready or imperceptible at the wrist, arm, axilla, temple, and neck; and if a vein or artery be opened, the blood trickles away, thick and dark. In spite of the extreme coldness of the surface, the patient complains of heat, throws off the bed-clothes, and suffers from great restlessness and incessant jactitation, complains of a burning heat in the epigastrium, and is tormented with thirst; the respirations are below the number in health, the inspiration difficult, and the expiration short and convulsive; the voice is plaintive, the patient speaking in a hoarse whisper; the breath feels cold; the tongue is white or of a leaden color, cold and flabby; the temperature often as low as 79° or 77° and even 72° . The secretion of urine is partially or entirely suppressed, and the body exhales an earthy or cadaverous odor. In this state of collapse the disease often proves fatal, the patient dying without a struggle, and retaining his faculties to the last. In other cases he gradually rallies, the pulse rises, the blueness of the surface disappears, the body resumes its warmth, the cramps and vomiting cease, bile appears in the motions, the secretion of urine is restored, and a rapid and complete recovery takes place. But in a third class of cases the improvement is partial and temporary, and the patient falls into the typhous condition, from which he may possibly recover after several days.

TERMINATIONS.—In sudden death; in death after severe primary or secondary symptoms; in recovery; in prolonged gastric irritation; in secondary fever of the typhous character, often accompanied by a rash resembling urticaria febrilis.

PATHOLOGY and MORBID ANATOMY.—The disease appears to consist in a sudden rejection of the fluid parts of the blood through the mucous membrane of the alimentary canal; the intestines are filled with a white flaky liquid; the mucous membrane is swollen, and greatly congested in patches; all the glands of the intestines are large and prominent; the veins and arteries loaded with dark blood; the lungs congested in some cases, extremely contracted in others; the liver and gall-bladder gorged with bile; the kidneys congested; the urinary bladder contracted and empty. In

patients who survive the stage of collapse, and die after the secondary fever, the morbid appearances are those present in enteric fever.

DURATION.—In fatal cases, from a few minutes to twelve hours or more. More than half the fatal cases die within twenty-four, and nearly a sixth within six, hours. The average duration is about two days. The duration of the cold stage varies from a few minutes to forty-eight hours or more, while that of the febrile stage may extend from four to ten days or more.

MORTALITY.—At the onset of the epidemic nine-tenths of the cases; on the average about one-half; at the decline a small fraction. Deaths from Cholera in England and Wales, in 1831-32, 30,924; in 1848-49, 54,398; in 1853-54, 24,516. Deaths in London, in a million of inhabitants, 6,209 in 1849, and 4,269 in 1854.

CAUSES.—*Predisposing.* Debility; impaired health; intemperance; impure air; impure water; low and damp situations; the summer and autumn season.—*Exciting.* A peculiar poison contained in water arising from the decomposition of animal matter.

DIAGNOSIS.—From *English cholera*, by the greater severity of the symptoms; the complete suppression of urine, the intense blueness of the surface, the hoarse, feeble voice, and the shrunk appearance of the countenance. But these marks will not serve to distinguish the disease from the more severe cases of English cholera. The premonitory diarrhoea of cholera is distinguished from ordinary diarrhoea by the absence of pain.

PROGNOSIS.—*Favorable* in the early stage before collapse has set in, and in the secondary stage when the febrile symptoms are slight; *unfavorable* during the stage of collapse, and in the secondary fever when it assumes the typhous character.—*Favorable Symptoms.*—Cessation of cramp; subsidence of vomiting and purging, and the reappearance of bile in the motions; voiding of urine; return of the pulse; restoration of heat in the extremities and surface of the body; disappearance of the blueness of the skin and of the facies Hippocratica.—*Unfavorable Symptoms.* Extreme collapse; absence or cessation of vomiting and purging in the stage of collapse; deafness; the evacuations of the color of port wine. Advanced age, previous debility, ill health, or habits of intemperance. The disease is somewhat more fatal in females than in males.

TREATMENT.—I. Of the preliminary diarrhoea. II. Of the stage of collapse. III. Of the stage of reaction.

I. The preliminary diarrhoea requires the treatment of common diarrhoea. A scruple of the compound chalk and opium powder may be given three or four times a day, the diet being at the same time restricted to gruel or arrowroot, made with milk. In more severe cases, grain-doses of opium, in combination with $\frac{1}{2}$ grain of sulphate of copper, may be given every hour, or every two or three hours. When the patient is weak and exhausted, brandy may be administered from time to time. In epidemics

of Asiatic cholera, patients suffering from diarrhœa should be promptly treated and carefully watched.

II. The stage of collapse is best treated by large draughts of cold water, or water holding a little chlorate of potash in solution. The most hopeful means of restoring the circulation and of contracting the intestinal vessels, is the hypodermic injection of the $\frac{1}{16}$ of a grain of atropia at intervals of an hour. At the same time reaction should be promoted by warm blankets, bottles of hot water to the feet and epigastrium, and assiduous friction. The patient may be allowed to drink freely of warm brandy and water. The cramps may be relieved by rubbing, and the forcible extension of the parts affected.

III. Reaction having been established, the treatment may be guided by the symptoms actually present. The thirst may be assuaged by large draughts of water; diarrhœa, if it exist, may be met with opium in doses of one grain, repeated at short intervals, or by a strong decoction of logwood in combination with laudanum and aromatic spirit of ammonia; and the warmth of the skin may be kept up by frictions and warm applications. In the absence of diarrhœa, the bowels should be relieved by occasional doses of castor oil.

If the reaction be excessive, and assume the form of fever, the case must be treated as one of enteric fever; and if it assumes the typhous type, by the remedies appropriate to that condition.

PROPHYLAXIS.—Temperate habits; wholesome diet; and *pure boiled and filtered water*; moderate use of wholesome vegetables and ripe fruits; the early treatment of diarrhœa. Those who are able to do so, should remove from low-lying districts to high grounds. On the approach of cholera, the authorities should provide a supply of water of ascertained purity, and prevent access to pumps and sources liable to contamination. They should organize means for the treatment of diarrhœa, and also adopt measures for insuring personal and household cleanliness; for the early removal of all refuse matters; and for the suppression of nuisances. Armies attacked by cholera in low situations should be encamped on high ground, and draw their supply of water from pure springs or rivulets.

REMEDIES.—Castor oil in the dose of a tablespoonful repeated at short intervals, so as “to produce vomiting and purging sufficient to insure, from time to time, the evacuation of the stomach and intestines, and to prevent the accumulation of morbid secretions” as practised by Dr. George Johnson. Saline medicines. Injections of warm water or of warm saline solutions (sodii chloridii, $\frac{5}{8}$ ss., sodæ bicarb., 3 iss., aquæ callidæ, Ox.) into the veins (a mode of treatment followed by the most prompt and marked relief of all the symptoms, but not to be commended as curing cholera); transfusion of blood; calomel, in scruple or half-drachm doses every hour; cajeput oil; galvanism; large doses of opiates; camphor; acetate of lead in combination with opium. A drachm of

laudanum and a scruple of calomel administered at the onset, and repeated at a short interval, if necessary; chloroform; chloroform and brandy; quinine in large doses; Indian hemp.

DISEASES OF THE PERITONEUM.

PERITONITIS . . .	Inflammation of the Peritoneum.
ASCITES	Dropsy of the Belly.

PERITONITIS.—INFLAMMATION OF THE PERITONEUM.

VARIETIES.—1. Simple. 2. Tubercular.

1. SIMPLE PERITONITIS.

SYMPTOMS.—After rigors, but, in some cases, without any preliminary symptoms, pain commencing in any part of the abdomen, and soon extending over the whole, increased by pressure, and often so acute that even the weight of the bedclothes is intolerable. The skin of the abdomen is hot; the pulse is in general small, hard, and contracted, though sometimes full and soft; the countenance is expressive of great suffering; the patient lies on the back with the thighs flexed on the abdomen; the bowels are constipated; the urine scanty and high colored, and perhaps passed with pain; the tongue is white and covered with mucus, and soon becomes dry and brown; the breathing is thoracic, short, each inspiration causing an increase of pain. The disease often terminates fatally within twenty-four or forty-eight hours by great prostration, death being preceded by sudden cessation of pain, sharpened countenance, distention of the abdomen by liquid or gas, vomiting of a coffee-colored fluid, cold extremities, and torpor.

MORBID APPEARANCES.—Injection of the vessels of the peritoneum; coagulable lymph spread over the surface, or flakes of lymph floating in serum or pus; the folds of the intestines adherent by coagulable lymph to each other and to the contiguous viscera. In chronic cases the adhesions are organized, binding the intestines so firmly together as to greatly hinder peristaltic movement.

CAUSES.—Cold and fatigue; constipation; contusions; wounds, surgical operations; parturition; rupture of any of the abdominal viscera.

PROGNOSIS.—*Favorable*, in peritonitis from common and transient causes.—*Unfavorable*, in that produced by mechanical injury, organic disease, parturition, or rupture of the abdominal viscera.

DIAGNOSIS.—From *rheumatism* or *neuralgic pains* of the abdominal muscles, by the pain being increased by pressure, and by the presence of *severe* constitutional symptoms. From colic, by the character of the pain. (See p. 158.) In colic the patient writhes about and changes his position. In peritonitis even the abdominal respiratory movements are

avoided. From ovarian inflammation (see Oophoritis). From hysterical tenderness and pain, by the severe constitutional symptoms. The disease, in its early stage, may be distinguished by a feeling of crepitation under the hand, and a *to-and-fro* sound on applying the stethoscope while the abdominal parietes are in motion, in the act of respiration.

TREATMENT.—In recent and acute cases bleeding from the arm, followed by leeches and warm fomentations, and the internal use of tartar emetic with calomel and opium in full doses, and at short intervals, so as speedily to affect the system. In very severe cases, mercurial inunction may be added. If the stomach be irritable, the tartar-emetic must be omitted. In less severe cases, leeches to the abdomen, followed by warm fomentations, and calomel and opium internally.

The large intestines may be relieved by enemata of warm water or warm gruel.

If there be painful tympanites, turpentine enemata are required, or the long elastic tube may be introduced so as to allow the accumulated gas to escape.

When effusion has taken place, and the febrile symptoms have abated, the treatment will be that of ascites.

Chronic peritonitis must be treated by the repeated application of leeches, blisters, and stimulant embrocations to the abdomen. If the intestines become adherent from organization of the plastic lymph thrown out around them, such food only should be taken as is readily absorbed. The resulting constipation must be treated by enemata and very mild laxatives, such as castor oil and confection of senna.

2. TUBERCULAR PERITONITIS.

SYMPTOMS.—These come on very insidiously. The abdomen slowly enlarges until it at last attracts the notice of the patient; and when he first comes under treatment, ascites to a considerable extent is present. The general health now begins to fail; emaciation, sweating, and diarrhoea, alternating with constipation, set in; the abdomen become tense, painful, and tender (the pain is at first deep seated); hectic, and gastrointestinal irritation, resulting in vomiting and more severe diarrhoea, sooner or later supervene, the food is rejected, and the patient dies of asthenia. Sometimes the mesenteric glands and the fold of the mesentery are the chief seat of the tubercular deposit, and hard nodular tumors may be felt through the abdominal walls; and the chief, and it may be, the only other symptoms present, are emaciation and swelling of the belly. This variety of the disease is called *Tubercular mesenteritis* and *Tabes mesenterica*. It is only in the latter stages of this variety that ascites becomes a prominent symptom. When the tubercular matter is deposited simultaneously in the mesenteric and intestinal glands and upon the general peritoneal surface, the emaciation is very rapid, and the pallor of surface extreme.

MORBID ANATOMY.—If the disease kill speedily, the peritoneal cavity will be found distended with clear serum, and the peritoneal covering of the intestines uniformly granular with miliary tubercles the size of hemp seeds. The mesenteric glands are more or less enlarged and hardened. In the more chronic form the mesenteric glands are greatly enlarged, forming hard nodular matted masses. When opened the centres of many will be found softened. When persistent and intractable diarrhoea has been a prominent symptom, we may expect to find tubercular ulceration of Peyer's glands. (See p. 151.)

DIAGNOSIS.—From ascites, caused by hepatic disease, by the absence of jaundice and hepatic enlargement or inequality. From enteric fever (see Vol. I., p. 282). The disease is often accompanied, sooner or later, by symptoms of pulmonary phthisis.

TREATMENT.—Iodide of iron alone or combined with cod-liver oil. Alternate infusions of cod-liver oil and iodine unguents into the abdomen. Chalybeate tonics. The gastro-intestinal symptoms must be treated as directed under Phthisis and Partial Enteritis.

ASCITES.—DROPSY OF THE BELLY.

SYMPTOMS.—A progressive and uniform enlargement of the abdomen, accompanied, when the quantity of fluid is large, by tension of the parietes; dulness on percussion over the whole abdomen, when the fluid is abundant; and when small, over the part to which the position of the patient causes it to subside, the rest of the abdomen being tympanitic; and a sense of fluctuation becoming more distinct as the quantity of fluid increases.

The general symptoms of ascites are due to pressure of the accumulated fluids, and when it is merely a symptom of some other disease, to the particular disease present. The symptoms arising from pressure are difficulty of breathing; suffusion of the countenance, and injection of the eyes; and distention of the superficial veins of the abdomen. Thirst, a dry skin, scanty urine, and torpid bowels, are among the most common accompaniments of ascites.

The disease seldom continues long without inducing, or being accompanied by, an anasarcons state of the lower extremities.

CAUSES.—The general causes of dropsy (see Vol. I., p. 253). Disease of any organ obstructing the portal circulation, and especially obstructive diseases of the liver, cirrhosis in particular; cancerous disease of the pancreas, involving the portal vein, is an occasional cause. Diseases of the spleen and mesenteric glands; of the heart, lungs, and kidney; scarlatina; loss of tone in the peritoneum after pregnancy; chronic or subacute inflammation of the peritoneum; and local injury.

DIAGNOSIS.—From *ovarian dropsy*, by the uniform enlargement and

reater width of the abdomen, which sways from side to side according to the position of the patient. From *tympanites*, by the dulness on percussion over the seat of fluid, or over the greater part of the abdomen. When the intestines are distended with air they float on the surface of the fluid, giving a tympanitic resonance to the upper parts of the abdomen. The pregnant uterus forms a defined rounded tumor, which contracts under the hand; moreover, we may feel the foetal movements, and hear the pulsations of the foetal heart. A distended bladder causes a uniform pyriform enlargement above the pubes, and is associated with constant dribbling of urine.

PROGNOSIS.—*Favorable.* The ascertained absence of organic disease of the viscera of the chest and abdomen. The urine healthy, in quality and quantity, and not coagulating by heat; moist skin; the swelling of the abdomen diminishing; the respiration becoming free; the strength little impaired.—*Unfavorable.* Organic diseases of the viscera of the chest and abdomen, especially of the liver; great emaciation; sympathetic fever; coma; an impaired constitution.

TREATMENT.—If pain and tenderness exist, leeches to the abdomen, followed by mercury so as to affect the mouth. If both are absent, the treatment must vary with the disease, of which the ascites is the effect. If disease of the liver, heart, lungs, or kidneys be present, the remedies appropriate to that disease. The remedies for the dropsy itself, irrespective of the causes which may have produced it, are diuretics, and drastic purgatives, unless contra-indicated. The choice of diuretics must be partly determined by the cause of the dropsy, and partly by the existing state of the patient.

If, after a fair trial, these remedies are unavailing, and the pressure becomes insupportable, recourse must be had to tapping.

Ascites is often combined with anasarca.

DISEASES OF THE LIVER.

CONGESTIO	Congestion of the Liver.
HEPATITIS	Inflammation of the Liver.
ABSCCESS	Of the Liver.
ACUTE ATROPHY	Of the Liver.
BILIARY CONCRETIONS, or	Gall Stones.
ICTERUS	Jaundice.
OTHER DISEASES	Of the Liver.

CONGESTION OF THE LIVER.

VARIETIES.—1. Sanguineous. 2. Biliary.

1. SANGUINEOUS CONGESTION.

SYMPTOMS.—A sense of fulness and weight in the right hypochon-

weak, and emaciated, the liver shrinks, the dropsy increases, there is hæmorrhage from the bowels, or profuse diarrhoea, and ultimately the patient dies exhausted.

Diffuse inflammation of the connective tissue of the liver, with effusion of the solid products, gradually undergo organization and contraction, and form a network of new connective tissue throughout the liver. The new material causes obliteration of the smaller branches of the portal and bile ducts, resulting in atrophy of the lobules. Stagnation of the portal circulation thus gradually results, ending in the inextinguishable form of ascites and anasarca.

ANATOMY.—The liver reduced in size, of a light yellow color, presents a coarse tubercular appearance, its surface covered with rounded elevations of various sizes, projecting above the capsule. Capsule thickened and opaque; tissue harder than normal, sometimes cutting like gristle; the cut surface presents intersecting bands of opaque connective tissue, forming a coarse network in which nodular masses are contained. The walls of the portal vein are thickened, surrounded by condensed connective tissue, and their lumina are diminished. The gall-bladder is collapsed, and contains a thick, opaque, golden yellow or light ochre-colored grumous fluid. On microscopic examination, a large portion of the hepatic cells are found to be shrunken, and their places occupied by masses of light-yellow pigmented material, traversed through a network of newly-formed connective tissue. The cells are shrunken, and are in a state of fatty degeneration. The capillaries of the lobules are degenerated, and their places occupied by a few narrow vessels which serve to convey the blood into the branches of the hepatic vein. The bile ducts are atrophied, and many of the smaller branches, as well as most of the tubular network within the lobules, are obliterated. Great enlargement of the spleen, and congestion of the portal system.

CAUSES.—The acute form; the abuse of ardent spirits; the disease is common amongst cabmen, who drink much neat spirits.

PROGNOSIS.—Sallowness of the skin, never amounting to jaundice; a coated tongue, and thirst, preceded or accompanied by a little dull pain and tenderness in the right hypochondrium, coming on after the age of forty, is strong presumptive evidence of cirrhosis. If these symptoms occur in a person who has indulged freely in spirituous liquors, the disease is quite clear. In *tubercular hepatitis* there is diffused pain and tenderness over the whole liver, and the sallow look of cirrhosis is almost entirely wanting, so great as in cirrhosis, the fluid is retained in pouches, and the liver the ascites is not so great. The jaundice. The

intemperance; protracted biliary congestion; dysentery; pneumonia; phlebitis of the portal vein or its tributaries.

DIAGNOSIS.—From *pneumonia*, by the absence of the local signs of that disease; by the pain in the shoulder; by the local pain, increased by pressure; by the yellowness of the skin and conjunctiva; by the color of the urine and fæces; and in many cases by the absence of cough and expectoration.

From *gastritis*, by the seat of the tenderness, and by the color of the eye and skin, of the urine and fæces.

PROGNOSIS.—*Favorable*. About the third, fifth, or seventh day, bilious diarrhœa; universal free perspiration; hæmorrhage from the hæmorrhoidal veins; an abatement of fever.—*Unfavorable*. Intense pain and fever; the pain confined to a point; continual hiccough; cold extremities; obstinate constipation; rigors and hectic fever, indicating the formation of abscess.

TREATMENT.—Local depletion by cupping or leeches; or, when the hæmorrhoidal or catamenial evacuations are suppressed, the abstraction of blood from the anus; blisters over the seat of the pain; brisk saline aperients; saline and antimonial diaphoretics; mercurial inunction; especially during the inflammatory stage of the disease; a low diet, consisting chiefly of farinaceous food.

2. CHRONIC HEPATITIS.—CIRRHOSIS.

SYNONYMS.—Hepatitis chronica, diffusa, adhesiva; interstitial hepatitis; hob-nailed liver; gin-drinkers' liver; chronic atrophy.

SYMPTOMS.—The early symptoms are very obscure. There is a sense of weight with obtuse pain in the region of the liver, increased by deep pressure or by lying on the left side, with enlargement and preternatural hardness of the organ, obvious to the touch. During the progress of the disease, symptoms of more acute hepatitis, and sometimes jaundice, are occasionally present. There is a sense of fulness and distention of the stomach, with flatulence, and loss of appetite. The countenance is sallow, and the skin harsh and dry; the patient is torpid, inactive, desponding, and grows thin; the bowels are obstinately costive; the stools deficient in bile; and the abdomen enlarges imperceptibly at first, and well-marked ascites is usually present when the attention of the physician is first called to the case. The ascites increases; the legs become œdematous; the veins of the abdomen are prominent; the urine is scanty, and deposits lithates, but rarely or never contains albumin. Symptoms of congestion of the alimentary canal appear:—the tongue is furred, there is much thirst, and hæmorrhage from the bowels or stomach is very liable to occur. The blood becomes much impoverished, and slight wounds bleed profusely; minute capillary aneurisms occasionally form in the skin, burst, and bleed freely. Under a careful treatment the patient may improve for a time, but sooner or later the digestion fails, he be-

comes anæmic, weak, and emaciated, the liver shrinks, the dropsy increases, a copious hæmorrhage from the bowels, or profuse diarrhœa, causes great debility, and ultimately the patient dies exhausted.

PATHOLOGY.—Diffuse inflammation of the connective tissue of the portal canals and interlobular spaces, with effusion of the solid products. These subsequently undergo organization and contraction, and form a dense fibrous network of new connective tissue throughout the liver. The contraction of the new material causes obliteration of the smaller branches of the portal vein and bile ducts, resulting in atrophy of the lobules. Great obstruction of the portal circulation thus gradually results, ending in the most irremediable form of ascites and anasarca.

MORBID ANATOMY.—The liver reduced in size, of a light yellow color like bees'-wax, presents a coarse tubercular appearance, its surface being studded over with rounded elevations of various sizes, projecting from the interior. Capsule thickened and opaque; tissue harder than normal, sometimes cutting like gristle; the cut surface presents intersecting lines of opaque connective tissue, forming a coarse network in which the yellow nodular masses are contained. The walls of the portal vein are thickened, surrounded by condensed connective tissue, and their calibre is much diminished. The gall-bladder is collapsed, and contains a little transparent golden yellow or light ochre-colored grumous fluid. On minute examination, a large portion of the hepatic cells are found to be destroyed, and their places occupied by masses of light-yellow pigment, scattered through a network of newly-formed connective tissue. In other places the cells are shrunken, and are in a state of fatty degeneration. The capillaries of the lobules are degenerated, and their places supplied by a few narrow vessels which serve to convey the blood into the radicles of the hepatic vein. The bile ducts are atrophied, and many of the smaller branches, as well as most of the tubular network within the lobules, obliterated. Great enlargement of the spleen, and congestion of the portal system.

CAUSES.—The acute form; the abuse of ardent spirits; the disease is very common amongst cabmen, who drink much neat spirits.

DIAGNOSIS.—Sallowness of the skin, never amounting to jaundice; a dryish tongue, and thirst, preceded or accompanied by a little dull pain and tenderness in the right hypochondrium, coming on after the age of puberty, is strong presumptive evidence of cirrhosis. If these symptoms occur in a person whose has indulged freely in spirituous liquors, the case is quite clear. In *tubercular peritonitis* there is diffused pain and tenderness over the whole of the belly, and the sallow look of cirrhosis is absent; the ascites, moreover, is never so great as in cirrhosis, and the fluctuation is less distinct, because the fluid is retained in pouches formed by the adherent intestines. In *cancer* of the liver the ascites is never very great; the liver, moreover, enlarges, and there is the characteristic cachexia, sweating and emaciation, and eventually jaundice. The

nodulated enlargement, known as the "hob-nail liver," may be perceived through the parietes, and distinguished from the single large round projection caused by a collection of *hydatids*; and from the smooth round tumor near the margin of the liver, caused by a *distended gall-bladder*.

PROGNOSIS.—Eminently unfavorable.

TREATMENT.—I. In the early stage leeches to the region of the liver as often as it is tender to the touch, blisters; and mercurial preparations in small doses, often repeated, with mercurial inunction, so as slightly to affect the gums.

II. The portal circulation must be relieved by saline aperients, given every morning, so as to keep the bowels loose. When the intestinal canal is healthy, drastic purgatives are often more effective than any other remedies. If the digestive powers are much impaired, a course of bitter tonics, such as the infusions of gentian, quassia, or calumba, with soda, or some preparation of steel, if the patient be anæmic. The nitric or nitro-muriatic acid internally (Form. 122) or as a bath (Form. 39). Partial tapping is never followed by permanent improvement; and if the whole of the fluid be withdrawn, there is danger of fatal exhaustion. Still, when the action of the diaphragm is impeded, we are bound to have recourse to tapping, and some patients bear a frequent repetition of the operation.

ABSCESS OF THE LIVER.

SYMPTOMS.—If in a case of hepatitis severe rigors occur, followed by well-marked hectic fever, and the previous continued pain, whether dull or acute, be exchanged for distinct throbbing, there is reason to believe that suppuration has taken place. Rigidity of the right rectus muscle usually accompanies abscess of the liver.

The abscess may burst into the stomach, and be emptied by vomiting; into the colon or duodenum, and be evacuated by the bowels; through the diaphragm into the cavity of the chest, giving rise to empyema; into the lung or bronchial tube, and be expectorated; or, it may open externally, between the ribs, or below them through the muscles of the abdomen or back. In very rare cases, the abscess discharges itself into the pericardium, into the pelvis of the kidney, into the ascending vena cava, or into cavity of the abdomen.

CAUSES.—*Predisposing*. Those of the inflammation of the liver which precedes it.—*Exciting*.—Phlebitis (leading to purulent deposits in the liver and lungs.) Dysentery. Operations on the rectum, bladder, or vagina. Ulceration of the stomach and intestines. Animal parasites.—*Echinococcus*, *Distomum*, and *Bilharzia*.

COMPLICATIONS.—Ascites. Inflammation of the organs contiguous to the abscess, and through which it ultimately discharges itself.

DIAGNOSIS.—The nature of the disease will be inferred from the

color of the discharged matter, and from the rigors, throbbing pain, and hectic fever attending the process of suppuration.

PROGNOSIS.—This will depend, in great measure, on the direction in which the abscess discharges itself, and on the degree of inflammation which follows. The prognosis is most favorable when the opening is in the parietes of the chest or abdomen. It is extremely unfavorable when the abscess bursts into the peritoneum. If it become encysted, the health may remain unimpaired for years.

TREATMENT.—If the abscess point externally, it must be brought forward by poultices and fomentations, and the matter must be discharged by a trocar and canula. Such an operation should not be performed unless we have reason to infer that there is adhesion between the sac of the abscess and the abdominal wall. A generous diet, and tonics, especially quinine and the mineral acids, must be prescribed.

HEPATITIS DIFFUSA.—YELLOW or ACUTE ATROPHY.

DEFINITION.—Acute disease of the liver, probably of an inflammatory nature, leading to total suppression of bile and degeneration of the secreting structure.

SYMPTOMS.—For a variable period of a week or more before any positive symptoms appear, there are usually indications of hepatic derangement; the bowels are irregular, sometimes purged and sometimes constipated; the abdomen is slightly tender, the tongue is coated; there is loss of appetite, and headache. Soon or later the skin presents a slight jaundiced tint. After the jaundice has existed for a week or fourteen days, or even longer, severe symptoms of biliary suppression manifest themselves, and the disease runs a rapid course, terminating fatally in twelve or twenty-four hours, or more rarely in a week. The skin, which was at first cool and dry, now becomes hot, and of a deeper yellow color; the pulse rises to 110–120; the head is hot and painful; severe vomiting comes on, first of gray mucus, afterwards of blood, clotted, or grumous like coffee-grounds; hæmorrhage from the bowels, uterus (with abortion), and nose, is liable to occur. There is pain in the right hypochondrium and the hepatic dulness is found on percussion to have diminished or disappeared, while that of the spleen has increased; the bowels are confined, and the stools firm, dry and clay-like, from deficiency of bile; occasionally they are tinged with bile. The urine is normal in quantity and specific gravity, of a dark brown color, and gives the reactions of bile pigment. Spontaneous evaporation on a glass slide yields microscopical yellowish crystals of leucin and tyrosin in fine needles, and bundles of dense opaque stellate masses (see *a*, Fig. 82), consisting of crystals of tyrosin. The pain in the head increases in severity, violent delirium sets

in, and is succeeded by convulsions, stupor, and deep coma; hiccough and diarrhoea are often present at this stage; the skin becomes deeper colored and frequently covered with petechiæ and ecchymoses, and the motions are tar-like, from the presence of blood. In this condition the patient usually dies. Rarely after free evacuation of the bowels, consciousness returns, the jaundice diminishes, and recovery takes place.

MORBID ANATOMY.—Liver shrunk, shrivelled, and flabby. Sections present a smooth, shining surface, of an ochre yellow color; but no division into lobules is visible. When minutely examined, no trace of hepatic cells can be found; the atrophied hepatic tissue is composed of fine yellow or pale molecules; a little oil in fine spherules; here and there irregular masses of a dark-brown color, and bundles of radiating crystalline masses of tyrosin; the biliary ducts are everywhere pervious, and their lining pale. The gall-bladder nearly empty, containing only a small quantity of gray mucus or grumous pale yellow fluid, neutral, and giving the ordinary reactions of bile. The blood of the hepatic vein is rich in crystals of tyrosin, but this compound is absent from the blood both of the portal vein and hepatic artery; decoction of the wasted liver

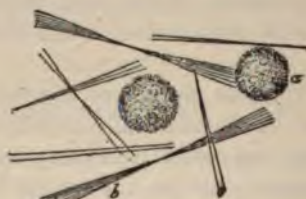


Fig. 82.

deposits much tyrosin and leucin. Leucin and urea are accumulated in the blood of the heart. The urine is deficient in phosphate of lime and urea, and contains large quantities of leucin, tyrosin, and extractive matters of a peculiar nature. The spleen is enlarged and congested, and extravasations of blood between the folds of the mesentery are occasionally found. (Frerichs.)

CAUSES.—*Predisposing.* Youth; irregular and dissolute habits; syphilis; pregnancy; certain miasmata (?).—*Exciting.* The symptoms and morbid anatomy both point to diffuse inflammation of the hepatic tissue:—"hyperæmia and gray exudation in parts not yet broken down" have been noticed. (Frerichs.) The obstruction to the portal circulation, causing the splenic enlargement and the gastro-intestinal congestion, are accounted for by the loss of function of the hepatic cells and the consequent collapse of the liver.

DIAGNOSIS.—Acute atrophy may be mistaken for typhus, pyæmia, and yellow fever. There appears to be a close relation between yellow fever and acute atrophy of the liver, but whether such be really the case

is uncertain. Acute atrophy is known by the shrinking of the liver, and by the presence of the leucin in the urine.

PROGNOSIS.—Exceedingly unfavorable.

TREATMENT.—At first a powerful emetic, and afterwards a large dose of calomel, followed by a strong saline aperient; hot baths; leeching and cupping over the liver. An occasional dose (v. grains) of quinine.

BILIARY CONCRETIONS.—GALL-STONES.

SYMPTOMS.—Biliary calculi give rise to no pain or inconvenience till they become impacted in the gall-ducts. The passing of the gall-stone is accompanied by the following symptoms:—Usually after a hearty meal excruciating pain in the epigastrium, extending to the right hypochondrium and back, occurring in severe paroxysms, with intervals of comparative ease, during which there is a dull heavy pain in the epigastrium, generally relieved by firm pressure. Nausea, frequent vomiting of a clear sour fluid, and constant hiccough, are also often present, and jaundice commonly supervenes in the course of the attack. The urine generally contains bile, and the motions are pale from its absence. The pulse is frequent and full, or the reverse; there is profuse perspiration; or, if inflammation be present, febrile symptoms. As soon as the calculus reaches the intestine, there is a sudden cessation of pain.

TERMINATION.—In death from exhaustion on the second or third day. In inflammation, followed by suppuration and the discharge of the calculus externally, or through some internal organ, as in ordinary abscess of the liver. After the escape of the gall-stones into the intestines, constipation or obstinate obstruction of the bowels, either immediate, when the stones are large, or remote, when they have become the centres of intestinal concretions. Sometimes a large number of calculi are found in the gall-bladder and gall-duct, after death, though no sign of their presence existed during life. Complete obstruction of the common bile-duct, and deepest jaundice may exist for several months, or even years, without preventing the patient from following heavy manual work; but after a time he lapses into the anæmic state, and ultimately dies of inanition.

MORBID ANATOMY.—After long retention of bile from closure or obliteration of the common bile duct, the ducts in the liver are found enormously dilated, while the gland itself is shrunken and atrophied and of a deep olive color; the secreting cells are destroyed, and their place occupied by free oil globules and dark biliary granules.

DIAGNOSIS.—The pathognomonic sign is the excruciating pain relieved by pressure. When the gall-stones are numerous, their presence may sometimes be detected by a rough crepitation under the finger. By watching the evacuations, and diluting them with water, they may some-

times be seen floating on the surface. If the gall-stone be round and smooth, there is presumption in favor of its being the only one; but if it present a flattened surface, it may be inferred that there are several. The calculi may be as small as a pea or larger than a walnut, and they have been found in the intestines of great size, and moulded so as to fill and obstruct the canal. They are commonly of a dark yellow-brown color, of soft consistence, and have several flat surfaces. They consist of cholesterin, and the coloring matter of the bile, sometimes blended with carbonate or phosphate of lime.

TREATMENT.—I. Opium, chloroform, the hot bath, hot fomentations or emetics to relieve the pain and spasm. The *opium* may be given in doses of a grain, or twenty drops of laudanum, every hour, and the enema *opii* every six hours.

II. In plethoric persons, or in those prone to suffer from inflammatory diseases, bleeding will do good. It may be followed, in the absence of vomiting, by nauseating doses of tartar-emetic.

ICTERUS.—JAUNDICE.

SYNONYMS.—*Morbus arquatus; aurigo; morbus regius.*

SYMPTOMS.—Languor; inactivity; nausea; loss of appetite, and bitter taste; and sense of uneasiness or pain in the right hypochondrium. The eye and the whole surface of the body are of a yellow color; the urine is high-colored, and tinges linen yellow; the stools are clay-colored, but in some cases light yellow; the bowels are usually costive, but diarrhoea is sometimes present; in extreme instances the sweat and saliva are yellow, and all objects seen by the patient are tinged of the same color. The pulse is generally slow, yet sometimes, especially when the pain is acute, becomes quick and hard, and there is a feverish heat and dryness of the skin. In some cases, also, the skin is the seat of troublesome heat and pricking. Should the disease be long protracted, petechiæ and maculæ sometimes appear in different parts of the body; the skin turns brown or livid; passive hæmorrhages and ulcerations break out, and the disease has in some instances assumed the form of scurvy.

CAUSES and PATHOLOGY.—Jaundice is directly produced by the transudation of bile through the walls of the distended bile ducts and the contiguous capillaries, into the blood. The ultimate cause of jaundice is therefore retention of the bile within the liver. The retention may be complete or incomplete. *Complete retention* is caused by the impaction of biliary calculi in the hepatic duct or its main branches, or in the common bile duct, by the pressure of cancerous tumors of the pancreas, duodenum, pylorus, and of the liver itself; by the pressure of fecal accumulations, and of the enlarged uterus; by inflammation of the lining membrane of the ducts causing their occlusion.

Inflammatory occlusion of the duodenal orifice of the common duct may probably be sufficient of itself to cause complete retention.

Spasmodic closure of the bile ducts was formerly regarded as a frequent cause of jaundice. It may be a transient cause, but it is highly improbable that jaundice of some days' standing is due to spasm.

Incomplete retention may result from biliary congestion; from the effect of certain poisons, especially the poison of serpents; and from mental emotion.

Jaundice is a prominent symptom of the severer forms of intermittent and relapsing fevers; it occasionally appears in a milder degree, during attacks of typhus fever, pneumonia, and pyæmia.

Both congestion of the liver and hepatitis may produce the jaundice occasionally present in these diseases; and both of these conditions, the one as a consequence and the other as an accident, accompany pneumonia; and suppurative hepatitis is one of the commonest results of pyæmia. Nor, when we consider analogous changes, does the sudden production of jaundice from fear, or other intense mental emotion, involve any special difficulties. Sudden fright, we know, will often cause an immediate exudation from the skin and alimentary canal, leading, in the latter case, to profuse diarrhœa; and if we imagine a similar relaxation of the biliary ducts, allowing of transudation of bile into the equally relaxed capillaries, we shall at once understand how the Abbé, as mentioned by Villermi ("Dict. des Scienc. Médic.," p. 420), became suddenly yellow when a mad dog rushed against him. Jaundice is frequently attributed to grief and other depressing passions, nor do we deny that it may be so produced; but we believe that if such cases were carefully investigated, in nine out of ten, a much more palpable cause would be discovered, viz., alcohol, which is so often taken to blunt and dispel grief. The identical history of numerous cases has convinced me that this agent acts locally by producing inflammatory occlusion of the orifice, or of the orifice and of some portion of the duodenal end of the bile duct. One history will serve for all these cases, so similar were the circumstances attending them. A young robust laboring man in perfect health, to allay a sudden vexation, intoxicated himself by drinking three or four glasses of neat rum. The next day there was anorexia, nausea, and some pain and tenderness in the epigastrium. On the morning of the third day, the skin was moderately jaundiced, the urine contained much bile, the feces none, and the bowels were constipated. The jaundice increased during the next three or four days, and then, under the influence of free saline purgation, gradually diminished, and disappeared at the end of twelve days. The most obvious explanation of such cases is, that the gastro-duodenal inflammation caused by the raw spirit involved the duodenal end of the common bile duct and closed it, thus preventing the flow of bile into the intestine. The mineral irritants appear to act in the same way. A patient of mine, took at once, by mistake, five doses of strong solution of acid

muriate of iron. It produced epigastric pain and tenderness followed by deep jaundice.

DIAGNOSIS.—The characteristic symptoms which distinguish this from every other disease are, the yellow color of the skin, conjunctiva, and urine; and, in most cases, the white or clay-colored fæces.

PROGNOSIS.—*Favorable.* The disease having arisen from a cause that admits of easy removal; such as violent mental emotion, accumulated fæces, or temporary pressure during pregnancy; the strength and appetite little impaired, the disease appearing suddenly, cessation of local pain, followed by bilious diarrhœa. The disease, even in mild cases, runs a chronic course, the skin rarely recovering its proper color under two or three weeks.—*Unfavorable.* Deep and persistent jaundice with anæmia, acute atrophy, cirrhosis, and cancer of the liver.

TREATMENT.—Jaundice from inflammation of the liver, or from obstruction of the duct, requires the treatment of hepatitis or of biliary concretions. (See those diseases.) When, however, there is no pain in the right hypochondrium, no fever, and the paroxysms of acute pain due to the passage of gall stones are absent, the treatment will consist in the use of emetics, and of gentle aperients to keep the bowels free. In the more strongly marked cases, we may begin the treatment by administering an emetic (Form. 201); and afterwards x. to xx. grs. of calomel, followed within two or three hours by half an ounce of castor oil. In cases of less severity, the treatment having been commenced by an emetic, the bowels may be kept free by some saline aperient (Form. 240).

ICTERUS NEONATORUM.—The jaundice of new-born children usually appears a few hours after birth, attains its maximum in three days, and disappears in from seven to fourteen days. The urine contains bile pigment, and the motions are pale; the general health is unaffected.

Causes.—A congested condition of the hepatic ducts. The jaundice of new-born infants is occasionally caused by constriction, an impervious condition, or congenital absence of the hepatic or common bile ducts; inspissated bile obstructing these ducts is another cause. In these cases life may be prolonged for several weeks.

Treatment.—Mild laxatives, such as syrupus sennæ preceded by gr. i. to gr. ii. hydrargyri cum cretâ.

OTHER ORGANIC DISEASES OF THE LIVER.

The liver is subject to several organic diseases besides those already described: namely, to fatty and waxy degeneration, cancerous, syphilitic, and tubercular deposits, serous cysts, and hydatids.

1. **FATTY DEGENERATION.**—The *symptoms* are, a smooth, rounded margin felt three or four fingers' breadth below the margin of the ribs, increased dulness of the hepatic region, pale fæces, liability to profuse pale

diarrhœa. Skin pale, anæmic, waxy and smooth to the touch: in drunkards greasy. As there is no impediment to the flow of blood through the liver, there is no dropsy or hæmorrhage.

Morbid Anatomy.—Bile ducts empty; liver enlarged, pale and greasy, or (in drunkards) dark dirty brown, and rotten (the nutmeg liver). Cells invaded with fat, and deficient in pigment granules. (Fig. 12, Vol. I., p. 75.)

Causes.—Phthisis; habits of intoxication, and a sedentary life; Bright's disease. The disease admits of no direct amelioration.

2. SYPHILITIC DISEASE OF THE LIVER occurs in two forms:—1. Simple interstitial hepatitis. 2. Hepatitis gummosa. These forms may co-exist in the same liver.

The *symptoms, pathology, and morbid anatomy* of simple interstitial hepatitis are those of cirrhosis; the syphilitic variety of the disease, however, more frequently results in simple induration without the formation of the nodules characteristic of cirrhosis. *Hepatitis gummosa* consists in the formation of white depressed deposits, having a radiated form, on the surface of the liver, and extending to a variable depth into the interior of the gland. In this opaque deposit, whitish or yellowish nodules, varying in size from a hemp-seed to a walnut, are found. They are composed of oil globules, cells loaded with fat, and fibres of connective tissue, being identical in structure with the common syphilitic node.

3. ALBUMINOID, WAXY, LARDACEOUS, or AMYLOID DEGENERATION OF THE LIVER is associated with a similar degeneration of other organs. It occurs in syphilitic, rickety, and strumous individuals, and is often associated with fatty degeneration and cirrhosis. The *symptoms* are anæmia associated with albuminuria and uniform enlargement of the liver, sometimes to an enormous extent.

Morbid Anatomy.—In the early stage the lobular structure is unusually distinct, the centres of the lobules are reddish yellow, translucent, firmer than natural, and sharply defined from the dull gray peripheral parts. As the disease advances, the whole of the lobule is invaded, and when this has occurred they are no longer distinct, and the section of the gland presents a smooth, homogeneous, yellowish red, glistening, semi-translucent surface. In advanced stages the liver has a waxy lustre, the molecular contents of the normal hepatic cells gradually disappear, and give place to a homogeneous clear substance, which fills up the cavity of the cells, and the individual cell membranes can be no longer distinguished, so completely is the tissue transformed. The walls of the blood-vessels and ducts undergo the same degeneration. On moistening the section with solution of iodine, all the parts which have undergone the waxy degeneration are colored deep red, and when subsequently treated with sulphuric acid, the red color is changed to a dirty violet or blue, similar to that produced in cellulose with the same reagents. These reactions have led some observers to the opinion that the degeneration is "*amyloid*." It is as distinct from starch as white of egg, being in fact a form of albumin.

4. **HYDATID TUMORS** are more common in the liver than in any other organ.—*Symptoms.* A globular tumor in the hepatic region having a tense elastic feel and history of slow, painless growth, and unaccompanied by any considerable derangement of health, is indicative of hydatid tumor of the organ. The tumor may have its seat on the under surface of the liver, and by pressure on the portal vein or bile duct cause ascites or jaundice. An abscess is always preceded by some marks of inflammation. An aneurism of the abdominal aorta may be distinguished by strong heaving pulsation, bellows murmur, palpitation in the belly, and sympathetic pains in various parts of the body. Hydatid tumors sometimes attain to an enormous size. They may burst into the abdominal cavity, causing severe peritoneal pain, collapse, and death in a few hours; into the intestine, and be evacuated per anum; into the lungs, when their contents are expectorated. These tumors may remain in a state of quiescence for a whole lifetime, but they are a source of constant danger, because they may be ruptured by any accidental blow or fall.



Fig. 83.

a, Echinococcus with circle of hooklets retracted. b, hooklets. c, d, E. expanded. e, E. imperfectly developed. f, E. showing suckers.

Structure of the Hydatid Tumor.—The tumor (*echinococcus veterinorum*) is formed of a restricted development of a species of tape worm, the *Tenia echinococcus* of Siebold. It is composed of a delicate thin-walled cyst, called the parent cyst, surrounded by a thick-walled dense sac, formed partly of an exudation from the parent cyst, and partly by a condensation of the hepatic tissue inclosing it. The parent cyst is filled with a clear salt fluid, in which are floating multitudes of delicate spherical secondary cysts varying in size from a pea to an egg. These secondary cysts are called *acephalocysts*; the larger contain fluid and another brood of *acephalocysts*. The inner surface of many of the *acephalocysts* presents a finely granular appearance; these granules are readily detached; they are *echinococci*, and have the appearances represented in Fig. 83.

The parent cyst and its progeny are very liable to calcareous degeneration, their delicate walls becoming thickened and hardened by milk-white earthy matter.

Treatment.—Hydatid tumors should be tapped as soon as they come

near enough to the surface, their contents completely evacuated, and means taken to effect a radical cure. (See "Med. Chir. Trans.," vol. xlix.)

MALIGNANT DEGENERATIONS of the liver assume the several forms of scirrhous, medullary sarcoma, and melanosis; and like malignant degenerations of other important viscera are necessarily fatal. They generally occasion a great increase in the size of the organ, and sooner or later produce obstinate jaundice and chronic ascites. The most common of these malignant diseases is the medullary cancer, in the form of tumors varying in size and scattered throughout the substance of the liver. They project from the surface, and can be felt through the attenuated walls of the abdomen.

The treatment is palliative, and varies with the symptoms, and the existing state of the system.

DISEASES OF THE SPLEEN.

The Spleen is very liable to congestion; is sometimes the seat of inflammation, acute and chronic, usually resulting in simple enlargement; is also liable to waxy degeneration, to fibrinous, tubercular, and syphilitic deposits. These diseases may be treated under the single head of

ENLARGEMENT OF THE SPLEEN.

SYMPTOMS.—Dull pain in the left side; dyspnoea; dry cough; inability to lie on the right side, loss of flesh; anæmia.

COMPLICATIONS.—Disease of the liver, an unusual tendency to hæmorrhage, dysentery, and scurvy, and to the anæmic or cachectic state, known as *leucocythæmia* (see Vol. I., p. 244).

CAUSES.—Previous attacks of ague; morbid degeneration, especially the deposit of tubercle; morbid softening; diseases of the liver obstructing the hepatic circulation, enteric fever.

DIAGNOSIS.—By the situation of the tumor in the left hypochondrium, extending, in extreme cases, to the epigastrium, the umbilicus, and the hypogastrium; by the tumor being solid and smooth, generally of an oblong shape, lying beneath the integuments, movable and presenting a notch on the right edge. The previous occurrence of ague always affords a probability that the tumor "ague-cake" is situated in the spleen.

TREATMENT.—The use of iodine, externally, and iodide of potassium, with tonics, internally; friction, in the absence of pain; gentle aperients, alteratives, and moderation in diet. If the disease have been preceded by ague, bark or quinine.

DISEASES OF THE PANCREAS.

SYMPTOMS.—The symptoms are still more obscure than those of disease of the spleen. Hard cancer is the disease to which this gland is most liable. The enlargement of the pancreas is not readily distinguished from that of the adjoining viscera; and is very liable to be confounded with organic disease of the pylorus or duodenum. Usual symptoms: a deep-seated pain in the epigastrium, nausea, sickness, and emaciation. Constipation or diarrhoea, salivation, and jaundice, occur occasionally.

DIAGNOSIS.—When the whole gland is diseased, by fatty stools (see Vol. I., p. 37).

TREATMENT.—The treatment must be so shaped as to meet urgent symptoms. Fat should be omitted from the diet.

CHAPTER V.

DISEASES OF THE URINARY ORGANS.

1. Diseases of the Kidney.
2. Diseases of the Bladder.

DISEASES OF THE KIDNEY.

NEPHRITIS	Inflammation of the Kidney.
OTHER DISEASES	Of the Kidney.
LITHIASIS	Gravel. Calculus.
HÆMATURIA	Bloody Urine.
CHYLURIA	Milky or Fatty Urine.
ISCHURIA RENALIS	Suppression of Urine.
DIABETES	Saccharine Urine.
DIURESIS	Immoderate flow of Urine.

NEPHRITIS.—INFLAMMATION OF THE KIDNEY.

VARIETIES.—1. Acute Suppurative Nephritis. 2. Acute Desquamative Nephritis. 3. Chronic Desquamative Nephritis.

1. ACUTE SUPPURATIVE NEPHRITIS.

SYMPTOMS.—Deep seated pain and tenderness in one or other loin; numbness in the thigh; frequent nausea and retching; irritability of the bladder, and pain on micturition; considerable pyrexia; urine presenting a white finely granular deposit, which, on examination is found to consist of pus cells, free or contained in casts of the uriniferous tubes. (See Fig. 38, Vol. I., p. 129.) If an abscess form, it may burst into the pelvis of the kidney, and be discharged by the urethra; or it may point in the loin or groin, which parts previously become full and tender. Free suppuration is accompanied by hectic fever, under which the patient often sinks.

CAUSES.—Morbid conditions of the blood. External violence. Retention of urine. Renal Calculi.

MORBID ANATOMY.—Kidneys enlarged, congested, with scattered abscesses varying in size from a walnut to a hemp-seed. Tubes stuffed with epithelial cells or pus corpuscles. If a calculus have been the cause of the disease, the kidney will probably be found destroyed, and its outer

portions converted into the sac of a large abscess which occupies its interior. Calculi usually lie in the pelvis of the kidney, and are the cause of suppurative inflammation of its mucous membrane (pyelitis). They ultimately lead to ulceration of the mamillæ, and degeneration of the entire kidney.

DIAGNOSIS.—Pus, derived from the kidneys, is moulded into tubes. The symptoms of inflammation of the pelvis are great renal pain and irritation, and the passage of large quantities of *free* pus.

TREATMENT.—In the early stage, cupping or leeches to the loin. Hot baths. A brisk saline purge followed by full doses of compound ipecacuanha powder, and acetate of ammonia. In the latter stages, quinine alone or with the mineral acids. If the inflammation be due to calculi, we must treat it accordingly. (See Renal Calculi.)

2. ACUTE DESQUAMATIVE NEPHRITIS.

SYMPTOMS.—After a chill, or slight feeling of chilliness, or merely after a pain in the loins and legs; headache; vomiting; rigor and pyrexia. In the course of a few days the face becomes pallid and swollen, and the legs œdematous. Ultimately there is general anasarca.

During the first few days the urine is very scanty, or even suppressed. It is of a dark-brown or red color from admixture of blood, and loaded with albumin. The pain in the loins persists, and on deep pressure there is much tenderness. Sometimes the pain is severe, and extends down the ureter to the bladder and thence to the testicles and down the inside of the thighs. Nausea and vomiting accompany these symptoms. Inflammation of the serous membrane is very liable to occur during the existence of the febrile symptoms. Sometimes convulsions and coma (symptoms of suppression) suddenly supervene.

If the case progress favorably, the quantity of urine increases, and deposits a little cloud of flocculent matter, and the blood disappears. After a week it may become quite clear, and remain of a pale color and low specific gravity; it constantly contains albumin, the quantity of which is variable, but as convalescence approaches, diminishes to a mere trace. Sometimes as much as 120 ounces of urine are voided in the twenty-four hours. The anasarca now gradually disappears, and the patient is ultimately left very thin and weak. If the disease terminate fatally, death is preceded by diminution of the urine, and at last total suppression. Death more frequently occurs in the latter stages from dropsy and chest complications, resulting in apnœa.

CAUSES.—Scarlatina, measles, erysipelas; abuse of alcoholic liquors; suppression of the cutaneous excretions from exposure to wet and cold.

PATHOLOGY.—Excessive functional activity of the kidney, induced by suppression of the cutaneous excretion. This leads to active congestion and excessive growth of secreting epithelium, the cells of which,

being changed, become at last inadequate for the performance of their own special function—the elimination of the urinary constituents. These, in part, remain in the blood, and give rise to the characteristic symptoms of the disease. Meanwhile the capillaries of the kidney become dilated or even ruptured, and the constituents of the blood escape into the renal tubuli. The blood becomes much impoverished; the albumin and red corpuscles diminish, and the specific gravity of the serum falls from 1030 to as low as 1020 in some cases. But what is of more serious import still, urea accumulates in such quantities in the blood, that its presence may be detected in effusions in distant parts of the body.

The fatal symptoms of urinary suppression are due to the presence of urea of the blood. At first the stomach endeavors to eliminate it, and hence the vomiting, but this vicarious function is insufficient: the poison accumulates, and its action is manifested in the convulsions and coma which terminate life. It is thought by some that urea, as such, has no poisonous influence, and that the terrible symptoms of suppression only come on when this is converted into ammonia.

MORBID ANATOMY.—After death during an acute attack. Both kidneys involved. They are enlarged and congested, and of a dark red or chocolate color; the structure as firm or a little firmer than natural; the cortex mottled with spots of anæmic and ecchymosed tissue; the medullary cones uniformly congested.

On minute examination the uriniferous tubuli are found, some crowded with epithelial cells, others filled with blood, giving rise to the ecchymosed spots observed on the capsular surface and in the interior of the gland; in others the clot has become colorless. Here and there blood may be observed effused into the capsule inclosing the Malpighian tufts. The walls of the capillaries themselves are thickened and opaque. The pelvis of the kidney, the ureters, and sometimes the bladder are congested; and there is general congestion of the internal organs and effusion into the serous cavities. The bladder is usually empty. If the disease have continued for a month or more, the kidneys will be found in one or other of the stages of degeneration described under chronic Desquamative Nephritis.

DIAGNOSIS.—Edema commencing in the delicate areolar tissue of the eyelids, nymphæ, or scrotum, followed by puffiness of the face and general anasarca; the dark, smoky color of the scanty urine, which is found to deposit blood corpuscles and casts of the uriniferous tubules filled with epithelial cells (Fig. 34, Vol. I., p. 129), are the signs by which acute desquamative nephritis, and its attendant dropsy, may be distinguished from other renal affections, and dropsies dependent on hepatic, pulmonary, or cardiac diseases.

PROGNOSIS.—*Favorable* if the secretion of the urine be free, and contain comparatively little blood and albumin. *Unfavorable* if the urine be very scanty and bloody, and if difficulty of breathing come on.

TREATMENT.—I. *Reduce the inflammation*, either by the use of cupping-glasses, or the application of numerous leeches to the region of the kidney, followed by mustard poultices.

If there be much febrile action, tartarated antimony, in diaphoretic doses, is indicated. A few grains of Dover's powder may be combined when there is pain, but it must always be remembered that the effects of opium are greatly intensified in renal disease.

II. *Restore the action of the skin.*—The hot bath, or, still better, a hot-air bath, should be given, and acetate of ammonia simultaneously administered, in order to secure copious diaphoresis.

The temperature of the room should be kept above 70° Fahr.

III. *Relieve the action of the kidneys.*—Purgatives of senna or jalap should be given, so as to keep the bowels freely open. The diet must be restricted to gruel and farinaceous substances; and toast or barley-water may be freely taken.

IV. If symptoms of *suppression* appear, the treatment recommended under Ischuria Renalis (see p. 200).

3. CHRONIC DESQUAMATIVE NEPHRITIS.

SYMPTOMS.—These are insidious, and may long remain unobserved. The disease is a frequent consequence of a slight attack of the acute form, and we may generally trace back its origin to an indisposition caused by exposure to wet or cold. In many cases it appears to be the consequence of gradual degeneration of the kidney. Many patients present the gouty diathesis, or are actually suffering from an attack of gout when the renal symptoms first appear. Anæmia, with an inclination to swelling of the eyelids and ankles, are the symptoms which induce the patient to apply for relief. On inquiry we shall probably find that the urine is copious and frequent, and that the patient is disturbed several times in the night to void it. In gouty subjects the urine is usually scanty and loaded with lithates, and contains a variable quantity of albumin and casts of the uriniferous tubules resembling those already described as characteristic of acute desquamative nephritis. The patient may remain in this state for months or even a few years, but at last dropsy comes on and becomes general, the urine decreases, the casts show great degeneration of the epithelial cells, and have a granular appearance (Fig. 35, Vol. I., p. 129); sometimes the cells are altogether absent, the cast itself looking like a film of wax, to which spherules of oil in the latter stages occasionally adhere. (Fig. 37, Vol. I., p. 129.) The dropsy suddenly increases with ascites and œdema of the lungs; or the urine becoming scanty, urea accumulates in the blood, the patient is seized with successive epileptic fits, finally becomes comatose, and so dies. Death from cerebral hæmorrhage (apoplexy) is a common result of chronic renal disease, and this may happen before dropsy has appeared, or even a suspicion of renal disease been entertained.

MORBID ANATOMY.—The kidneys are more or less atrophied, shrunken, and red, weighing sometimes not more than $1\frac{1}{2}$ ounce; the tubuli in part completely denuded of epithelium, and atrophied; the cortex contracted and reduced to a narrow layer covering the bases of the cones, and the Malpighian bodies more closely approximated. Some of the tubuli present dilatations, which, by becoming isolated and further distended, are converted into cysts containing a clear albuminous and often a jelly-like fluid. The intertubular tissue has a fibrous appearance, and the walls of the blood-vessels are thickened. The capsule is generally firmly adherent, and the surface from which it is removed granular. The granulations are composed of aggregations of degenerated tubules lying between the small branches of the renal vein. This condition closely resembles that of cirrhosis of the liver. If the disease have had its origin in gout, the kidney will be small and atrophied, as in the last stage of chronic desquamative nephritis, but they will often present the characteristic appearance described at Vol. I., p. 337.

If the chronic disease follow the acute, we may meet with two other morbid conditions of the kidney—viz., the “large white” and the “red coarse mottled” kidney, both of which may be regarded as intermediate stages between the swollen congested kidney, characteristic of the *first stage of acute desquamative nephritis*, and the small contracted kidney, the *last stage of chronic desquamative nephritis*. The coarse red mottled kidney is found in those who have abused spirituous liquors: it is a mixture of congestion and fatty degeneration, the white spots which mottle the enlarged cortex, and the white lines which streak the pyramids being composed of fat.

PATHOLOGY.—COMPLICATIONS AND TERMINATIONS.—In consequence of the destruction of the secreting epithelium of the kidneys, the blood becomes contaminated with the constituents of the urine. The effects of the circulation of this impure blood are:—1. The affinity between the growing and secreting structures and the blood is diminished, the capillary circulation is feeble and sluggish, and the heart and blood-vessels, in their endeavors to overcome the impediment, become hypertrophied and dilated. These efforts failing, general anasarca results.—2. The gastrointestinal and pulmonary mucous membranes take on an action vicarious of that of the kidney, and endeavor to eliminate the urinary constituents: vomiting, diarrhoea, and bronchitis are the consequences.—3. The impure blood tends to produce low forms of inflammation in various parts of the body; peritonitis, pleuritis, pneumonia, and if the skin be slightly wounded, erysipelas, may arise as complications at any time. The brain itself is often implicated, the diseased vessels allowing serous exudation, and fluid containing urea poured out into its ventricles:—the ultimate result when death occurs from suppression of urine. Apoplexy, from the same cause, may be looked for at any time.

DIAGNOSIS.—For that of dropsy, see Vol. I., p. 253. Renal dropsy is

known from other varieties:—1. By the absence of long standing pulmonary, cardiac, or hepatic disease:—2. By the mode of access, appearing first on the face, particularly the eyelids, on rising in the morning, and by slight puffiness of the ankles and scrotum towards evening; and 3. By the condition of the urine, from which the several stages of renal degeneration may be safely inferred. If the tubular casts be composed of epithelial cells in a state of granular degeneration, we may assume that the kidney is in the second stage of degeneration. If the casts be large, and wholly denuded of cells, the degeneration is still further advanced. If these denuded casts contain oil globules, the organ may be regarded as in the last stage of atrophy. (See Vol. I., p. 128.)

PROGNOSIS.—The prognosis will depend on the evidence furnished by the microscope as to the state of the kidney, indicated by the casts of the uriniferous tubules just described under diagnosis. In the early stage of chronic as well as of acute desquamative nephritis, in the absence of any serious complications, recovery may be hoped for. In the later stages the prognosis is unfavorable.

CAUSES.—*Predisposing.* The scrofulous diathesis. It occurs in both sexes, and at all ages. Of seventy-four fatal cases recorded by Dr. Bright, nineteen were under thirty; thirty-eight under fifty; thirteen above fifty; and four above sixty.—*Exciting.* Those of the acute forms of the disease. The impure air, and other unwholesome influences to which the poor inhabitants of large towns are exposed; intemperance; mechanical injuries; cold; a previous attack of scarlatina, followed by dropsy; rheumatism; gout.

TREATMENT.—*Relieve the congestion of the kidney, and the attendant dropsy,* by purgatives and diaphoretics, diuretics being inadmissible. In the absence of diarrhoea, a drastic purgative, such as a full dose of the compound jalap powder, may be given every morning. When there is much debility, stimulant diaphoretics, such as the liq. ammon. acet. in doses of ʒii. to ʒiv. three or four times a day, are indicated. The warm bath, or the hot-air bath, may be used at intervals of one, two, or three days. The skin should be kept warm.

To improve the health.—A nourishing diet should be prescribed; and preparations of steel, of which the tinctura ferri perchloridi (in doses of ℥x. or ℥xx.) is the best. I have given this with advantage in combination with belladonna, the object being to promote contraction of the renal blood-vessels.

In the treatment of complications, the pathology of the disease must be duly regarded; vomiting may be checked, but purging, we must remember, is a natural safety valve, and we must merely restrain it, if it become immoderate. If the œdema of the legs increase, and the skin become painfully tense, much relief will be afforded by acupuncture, or slight incisions made on the outside of the legs, or we may insert a capillary trocar with a long dependent india-rubber tube dipping into a vessel

of water. The syphon action thus established will aid the flow of serum from the cellular tissues.

PROPHYLAXIS.—Temperance; pure air; a warm, dry climate; plain and wholesome diet, and regular exercise, are needful for persons who have had nephritis, or who seem liable to it.

OTHER DISEASES OF THE KIDNEY.

The kidney, in common with other vascular organs, is liable to many other forms of disease. Some of these may affect the kidney alone; others are associated with similar disease of the neighboring viscera. So long as one kidney only is affected, the urinary function is unimpaired, the healthy organ becoming hypertrophied and performing double duty. The following are the diseases most commonly met with:—

I. *Cystic diseases*.—Cysts in the kidney, varying in size from a mustard seed to a marble, and of very frequent occurrence in the cortical part of the kidney. The atrophied kidney of chronic nephritis very commonly presents a large number of minute cysts. It is sometimes enlarged and lobulated, and converted into a few large cysts filled with glairy fluid, the intervening secreting structure being destroyed. There can be little doubt that these cysts are formed by obstruction and obliteration of one part of the denuded uriniferous tubules, while other portions are distended into cysts by the secretion of albuminous fluid.

When an ureter becomes obstructed or obliterated, at first urine, and then a watery fluid, continues to accumulate in the pelvis of the kidney, the secreting structure being slowly absorbed by the pressure, and the whole organ finally converted into one large cyst. A similar change may result from an impediment to the flow of urine from the bladder, the ureter becoming dilated in extreme cases to the diameter of the small intestine. The term *hydro-nephrosis* has been employed to indicate the presence of such cystic tumors.

The kidney is liable to morbid changes resembling those which, in the ovary, give rise to ovarian dropsy. In one case which came under my notice, the symptoms were so precisely similar that the case was treated throughout for ovarian disease, the abdomen being uniformly and excessively enlarged, dull, and distinctly fluctuant on percussion. After death both ovaries and the other genital organs were found perfectly healthy, and had contracted no adhesions with the tumor. This, which weighed forty-five pounds, was contained within a smooth-walled cyst; the ureter and upper end of the left kidney were directly continuous with the smooth wall of the tumor. There were two principal cysts, which contained together nine pints of fluid,—colorless in one of the cavities, and dark brown in the other. The right kidney was healthy and hypertrophied. This patient was 34 years of age; and had had two children. Another case, presenting exactly the same symptoms, and generally the

same morbid appearances, also in connection with the left kidney, occurred at the Stockport Infirmary during my residence there. The subject was a little girl about seven years of age. The abdomen was greatly distended as if by the gravid uterus. The age of the patient simplified the diagnosis; a tumor of the uterus it could hardly be, and ovarian disease seemed just as improbable; still from the uniformity of the swelling which had commenced in one iliac region, its fluctuation, and the absence of any urinary symptoms, most of those who formed a positive diagnosis concluded that it was ovarian.

II. *Fatty degeneration (the granular kidney).*—This is the condition to which the atrophied kidney of desquamative nephritis tends. The kidneys are large and pale, the cortex is anæmic, and mottled with opaque granulations of a yellowish-white color, giving to the organ a granular appearance. On minute examination the granulations are found to be composed of fat, and the convoluted tubuli are lined with dark opaque cells, composed of fatty molecules and drops of oil (Fig. 12, Vol. I., p. 75).

The early symptoms are those of desquamative nephritis; afterwards the pale albuminous urine is rather scanty and quite clear, occasionally depositing a little cloud of small waxy casts, in which minute globules of oil are found adhering.

III. *Albuminoid (waxy, lardaceous, amyloid) degeneration.*—The kidney, in common with other glands, is liable to this form of disease. It is usually increased in size; it is hard and cuts firm; the surface of the section is smooth, homogeneous, and of a waxy appearance. The minute structure of the degenerate tissue is that described under Albuminoid Degeneration of the Liver. (See p. 181.) This condition appears to be derived from the "large white kidney," found in the second stage of acute nephritis. Perhaps the scrofulous diathesis, with which the albuminoid kidney is most frequently associated, determines the particular pathological condition in which the large white kidney may issue. The term "*albuminoid*" is selected to designate this form of degeneration, because the morbid material is of the nature of albumin. "*Lardaceous*" and "*waxy*" are only appropriate in so far as they refer to appearances. The term *amyloid* is exceedingly inappropriate.

The symptoms are those of chronic desquamative nephritis.

IV. *Tuberculous and cancerous* deposits occur in the kidney, associated with similar disease elsewhere, rarely or never alone. They form at first isolated rounded masses, which tend to become confluent and soften in the centre, and being discharged with the urine, may be identified, and the condition of the kidney inferred.

V. *Hydatid tumors* of the kidney are uncommon.

LITHIASIS.—GRAVEL AND CALCULI.

SYMPTOMS.—Dull or acute pains, with a sense of heat and heaviness in the loins; with more or less pain or difficulty in voiding urine, increased by sudden and violent motion, with occasional pain behind the pubes; irritation at the neck of the bladder, and itching or pain at the end of the penis. Sometimes there is retraction of the testicles, with discharge of bloody urine, or clots of blood. The urine, even while warm, contains a sandy powder, crystalline grains, or small calculi. It is generally rather scanty, high-colored, of high specific gravity, acid, of a strong odor, and becomes turbid on cooling. The digestive organs are deranged, and the patient suffers from acidity, flatulence, and frequent eructation; constipation; furred tongue and dry skin; and is restless and feverish.

The most common form of gravel consists of urate (lithate) of ammonia, with or without free uric acid (*red gravel*). Next in frequency is pure uric acid. The ammoniaco-magnesian phosphate, or a mixture of this with amorphous phosphate of lime (*white gravel*), comes next in order; then oxalate of lime. These deposits may co-exist or alternate with each other. When the deposits become aggregated to form small calculi, the symptoms are much more severe. (For the mode of distinguishing these several varieties see Vol. I., pp. 117, *et seq.*)

The symptoms of *calculus in the kidney* are those of gravel in its most severe form, viz., pain in the loins, extending to the groin, testicle, or extremity of the penis, retraction of the testicle, painful and frequent micturition, and bloody urine; nausea and vomiting, restlessness, and slight fever. These symptoms are often suddenly removed by the discharge of a small calculus, accompanied, perhaps, by a large deposit of gravel. If the calculus remain in the kidney, the pain becomes fixed and increased by exercise, and especially by jolting or descending a staircase or steep hill. Hæmaturia and suppurative inflammation (*pyelitis*) and its complications (p. 185) are the consequences.

The symptoms of *calculus in the ureter*.—When a calculus is passing along the ureter, there are paroxysms of intense pain (a fit of the gravel), or a dull pain along the affected ureter and spermatic cord on the same side, extending to the penis, the testicle, or the inside of the thighs. There is frequently great tenderness in a circumscribed part of the abdomen, corresponding to the seat of the calculus. The patient is troubled with constant and often ineffectual calls to pass urine, which is tinged with blood. There are severe nausea and vomiting, and intense suffering. These symptoms may pass off suddenly as soon as the calculus reaches the bladder, followed in some cases by its discharge from the urethra. In other instances, the calculus remains impacted in the ureter, leading to disease of the kidney, or giving rise to large accumulations of urine, with distention of the ureter, of the pelvis, and even of the walls of the kidney itself. The kidney thus enlarged has grown to

such a size as to fill the abdomen (*hydro-nephrosis*) and be mistaken for ascites.

The symptoms of *calculus in the bladder* are, frequent desire to pass water; during its passage a burning sensation at the orifice of the urethra; sudden interruptions of the stream, accompanied by great forcing and intolerable pain; after lying on the back the urine again flows; the discharge of the last ounce is attended with excruciating pain, caused by the contraction of the bladder upon the stone; frequently there is numbness and tormenting pain down the inside of the thigh. After violent exercise, or long continuance of the symptoms, the urine becomes purulent and bloody, from inflammation of the mucous membrane of the bladder.

CAUSES.—*Predisposing*. High living; sedentary habits; rheumatic and gouty diathesis.—*Exciting*. Cold; blows and injury to the loins; parasites (p. 196-9); dyspepsia; the use of water containing much calcareous matter. In the case of the oxalate of lime gravel, an excess of saccharine matters, and of vegetables and fruits containing oxalic acid; organic disease of the kidney or bladder.

TREATMENT.—This varies with the species of gravel discharged.

In *uric lithiasis* a diet chiefly vegetable, and in extreme cases entirely so, with total abstinence from fermented liquors and wines. Diluents; the bicarbonate of potash, and salts of lithia, taken in a tumbler of cold water an hour before meals, three or four times a day, so long only as the urine has an acid reaction. The alkaline aerated waters of Vichy and Carlsbad.

In *phosphatic lithiasis* a more generous diet is admissible, with a moderate allowance of wine, and the mineral acids (the nitric, muriatic, or nitro-muriatic acid) should be given at short intervals. When the phosphatic diathesis has been brought about by exhaustion of mind or body, opium usually proves very serviceable.

In *oxalic acid lithiasis* mineral acids (Form. 122). Henbane is appropriate for the relief of pain, or irritability of any part of the urinary tract. All articles of food containing oxalic acid should be avoided and saccharine substances taken in moderation or in extreme cases, disallowed; and soft water alone should be used.

In all forms of gravel, strict attention must be paid to the general health; and to the functions of the skin, stomach, and bowels. Warm bathing is beneficial by promoting the action of the skin. Our efforts must be directed to relieve pain and facilitate the passage of the calculus. When there is positive evidence of the existence of a calculus in the kidney, the pain being so frequent and severe as to render life a burden, the question of removing the calculus through the loin should be entertained. The result of the operation is such as to promise a successful issue in healthy subjects. The medical treatment of *calculus in the bladder* will depend on the nature of the gravel voided by the patient.

HÆMATURIA.—BLOODY URINE.

SYMPTOMS.—An evacuation of blood in the urine.

CAUSES.—Congestion of the kidney, or of any part of the mucous membrane of the urinary organs, idiopathic, or produced by cantharides, turpentine, etc.; nephritis; calculus in the kidney, ureter, bladder, or urethra; blows on the loins; diseased prostate; chronic inflammation or ulceration of the mucous membrane of the bladder; villous tumors or malignant fungous growths from the mucous membrane. Sometimes hæmaturia occurs in the course of purpura, variola, typhus, and scarlet fever. In certain aguish subjects, and in some other conditions, this symptom is *intermittent*. The *strongylus gigas*, a nematoid worm, is a rare cause of hæmaturia. In Brazil, the West Indies, Egypt, Mauritius, Natal, and Cape of Good Hope, hæmaturia is *endemic*, and is due to animal parasites resident within the urinary organs (see p. 196).

DIAGNOSIS.—Bloody urine is of a bright-red or dark-brown color, and if the quantity of blood be considerable, a dark brown deposit, or distinct coagula are formed. For the chemical and microscopical characters, see Vol. I., p. 126. When the secretion is acid, and the blood in very small quantity, the urine has a smoky appearance, like weak tea or coffee.

The source from which the blood flows may sometimes be inferred from the accompanying symptoms, and a careful examination of the urine. If the hæmorrhage be preceded by pain in the region of the kidney, the blood be equally diffused through the urine, and contains casts of the uriniferous tubules (see Vol. I., p. 129), the blood is from the kidney. When the urine first discharged from the bladder is little, or not at all, tinged with blood, and the remainder is highly charged with it, there is a strong presumption that the hæmorrhage is from the bladder, especially if symptoms of stone are present. When the blood flows without discharge of urine, it is derived from the urethra.

TREATMENT.—Must be determined by the probable cause of the hæmorrhage. If the disease arise from injury, or the patient be of a full habit, cupping of the loins, rest, and gentle aperients will be required. If irritation of the kidney by calculus be the cause, frequent draughts of mucilaginous liquids, as thick barley water, solution of gum acacia, decoction of marsh-mallows sweetened with honey; opium; henbane; and copious emollient clysters; together with the remedies proper for that disease, should be prescribed. When the blood coagulates in the bladder, and gives rise to dysuria, the catheter must be used.

When the hæmorrhage is excessive, cold water, or a cold solution of alum (℥ i.—Oij.) may be injected into the rectum. At the same time the vegetable astringents (Form. 155, 154) may be given by the mouth. Acetate of lead with opium forms a useful combination. The *tinctura ferri perchloridi* is suited to the anæmic.

INTERMITTENT OR PAROXYSMAL HÆMATURIA.

SYMPTOMS.—The excretion of dark red, or reddish brown albuminous urine, after exposure to the outer air on a cold—and especially a damp, windy day. There is an inability to resist cold owing to an undue sensitiveness of the skin, which is either very pallid, or sallowish, and in some cases becomes on exposure quite livid. The patient experiences occasional chills, or distinct aguish attacks. In most cases the general health is but little affected, in others there is much depression and discomfort, the coldness of the surface recurring every morning, recovery gradually taking place towards evening and continues until the next day.

PATHOLOGY.—In some cases, intermittent congestion of the kidneys from temporary contraction of the cutaneous capillaries; in others, renal congestion or irritation dependent on the oxalic diathesis. In all cases the urine deposits a large quantity of chocolate-colored matter composed of disintegrated blood corpuscles, occasionally moulded into casts of the uriniferous tubules. In one class of cases, crystals of oxalate of lime are always present (Fig. 39, Vol. I., p. 129). The term *Hæmatinuria* has been given to this symptom, as implying an escape of blood coloring matter by the kidneys; but it is inappropriate, since the urine contains the whole of the constituents of the blood, and occasionally the corpuscles are entire.

CAUSES.—1. Severe congestion of the kidneys from prolonged exposure to cold immediately following profuse sweating. 2. The irritation of crystalline matter in the kidneys.

TREATMENT.—Those suffering from the aguish variety need a warm dry climate, the precautions requisite for keeping the skin warm and moist, and ague-doses of quinine. In the oxalic variety nitric, or nitro-hydrochloric acid, in combination with henbane is very serviceable.

ENDEMIC HÆMATURIA.

One of the above-mentioned causes of hæmaturia prevails so widely among the inhabitants of certain regions as to require separate consideration. It is known to be endemic in the West Indies, in Egypt, in the Mauritius; and some years ago I called attention ("Med. Chir. Trans.," 1864, *et seq.*) to its existence in Natal and the Cape of Good Hope, at Uitenhage, Port Elizabeth, etc.

Dr. T. Bilharz, of Cairo, has shown that the hæmaturia and gravel (lithiasis) so common in Egypt is due to the presence of a nematoid worm, variously termed *Distomum hæmatobium*, *Gynæcophorus hæmatobius*, and *Bilharzia hæmatobia*. It is a minute white worm, less than half an inch long. In Fig. 83, the female (A B C D), is represented partly lying within the gynæcophoric canal of the male (c); the eggs (E) are considerably magnified. The parasite inhabits the veins of the urinary and portal systems, but more commonly those of the former,

causing much congestion and hypertrophy of the mucous membrane of the bladder, ureter, and pelvis of the kidney.

The hæmaturia of the south-east coast of Africa and Mauritius is due to the same parasite.

SYMPTOMS.—The symptoms of the disease prevalent in South Africa and Mauritius are the following:—The passage, with the last ounce of urine, of a little blood, rarely exceeding a teaspoonful; or bloody, or colorless mucus, moulded so as to resemble “veins,” which sometimes cause a little obstruction, and give rise to straining. When the parasite inhabits the kidney, an occasional smart twinge of lumbar pain is felt. The urine is clear and pale, the blood being rarely or never diffused through it. After exertion the quantity of blood is increased. During the earlier years of the disease no other pain or inconvenience is expe-



Fig. 83.

rienced. The disease attacks both sexes at about the age of ten. My friend, the late Mr. Dunsterville, of Port Elizabeth, informs me that two out of every three schoolboys were affected, and their linen was commonly blood-stained like that of the other sex from the menstrual discharge.

Adults, and occasional residents of certain localities in the Cape and Natal, are also liable to the attacks of the parasite, and a person may acquire it on merely passing through the infected district.

After a few years the hæmaturia gradually declines, and, as a rule, entirely disappears at the age of puberty; but the cause, as manifested by the presence of ova in the urine, persists, and sooner or later gives rise to severe symptoms of gravel. The urine abounds in salts, and crystalline deposits, chiefly composed of oxalate of lime, form around the ova which the parasite produces in great abundance. The eggs may thus become the nuclei of renal or vesical calculi.

DIAGNOSIS.—The presence in the urine of the characterist ova, *a b* (Fig. 84). They measure the $\frac{1}{100}$ th of an inch long, and the $\frac{1}{400}$ th broad, and are sharp-pointed. The colorless or bloody mucous casts, *a*, frequently contain scores of these ova. Occasionally the ciliated embryo, *c*, may be observed escaping from the egg, *d*.

CAUSE.—The introduction of the parasite into the stomach by means probably of water, or of certain water plants or salads, or possibly into the blood by hypodermic puncture or cutaneous ulceration—almost all of my patients show scars on the legs, the result of some peculiar boils.

PROPHYLAXIS.—The use of filtered or boiled water, and prevention of the contamination of the streams by the urinary products of individuals suffering from the disease.

TREATMENT.—This must be directed: I. To kill or expel the adult sexual parasites. II. To secure the continuous expulsion of the ova, which, so long as they remain in the body, may at any time become the



Fig. 84.

nuclei of urinary calculi. To destroy the parasite, which is not simply attached to the surface, but contained within burrows of the mucous membrane, we must introduce into the blood a remedy poisonous to the parasite. Iodide of potassium is such a remedy, and we may daily inject from ten to twenty grains dissolved in $\frac{3}{4}$ iv. of infusion of quassia into the bladder. Ten to fifteen grains of extract of male fern may be occasionally substituted for the iodide, to induce strong expulsive efforts, whereby the worm may be dislodged from the mucous membrane. As atropia and hyoscyamia are wholly eliminated by the kidney, it is probable that a persevering use of belladonna and henbane may retard the development of the parasite, even if it do not cause its destruction. These remedies are at the same time most beneficial in allaying the irritation arising from crystalline deposits.

The hæmaturia of Brazil, the West and East Indies is, as far as the evidence goes, due to a different parasite. See the following article.

CHYLURIA.—CHYLOUS OR FATTY URINE.

SYMPTOMS.—The passage of opalescent, or milk-like urine. Sometimes it has a faint pink tinge from the presence of blood. Occasionally

the urine coagulates in the bladder and gives rise to retention. Otherwise the symptoms are very slight. In aggravated cases, debility, loss of flesh, and pain in the loins constitute the general symptoms.

The urine is generally abundant, of a milky appearance, and varying in density from 1010 to 1020. After this discharge it sometimes coagulates into a white gelatinous substance, like blanc-mange, taking the form of the containing vessel. It more frequently retains the liquid condition, and separates after some time into a clear yellowish fluid and a white clot; at other times a white flaky matter is deposited; or a white cream rises to the surface. The opalescence is due to fatty matter in the molecular condition; small granular cells resembling chyle corpuscles, and sometimes a few red blood corpuscles are also observed. On analysis, the urine furnishes, in addition to its normal constituents, fat and albuminous matter.

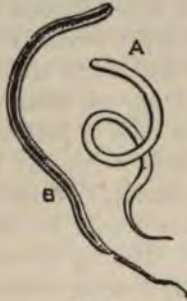


Fig. 85.

The disease is rare in temperate regions; but prevails endemically in the East and West Indies, Brazil, Mauritius, and Bourbon.

TREATMENT.—Does not admit of removal; but it may be palliated by gallic acid, and the astringent chalybeates.

PATHOLOGY.—Dr. H. V. Carter ("Trans. Med. and Physiol. Soc." Bombay, 1861) concludes that the chyle, by rupture of the walls of dilated lymphatic vessels, obtains direct entrance into some part of the urinary passages. In three of his cases there was an accumulation of milky chyle in the enlarged inguinal glands. A very close connection appears to exist between hæmaturia and chylous urine. The diseases frequently coexist. Further, hæmaturia and chylous urine are both endemic, and both prevail in the same localities. The late Dr. Wucherer, in the *Gazeta da Bahia*, 1869, was the first to demonstrate the existence of living *filariæ* in the recently voided urine. Dr. J. Crevaux confirmed this observation in a native of Guadaloupe. Subsequently Mr. T. R. Lewis has established the same fact in connection with the chylous urine of India. His observations were made on upwards of fifteen cases, all of which were associated with hæmaturia. He very properly regards the chylous urine as a mere accident attending the presence of vast numbers

of these minute worms in the blood, and probably in the lymphatics also. He says, that in certain individuals numbers of the worms can be obtained day after day by pricking any part of the body. On one occasion, he obtained six excellent specimens in a single drop of blood from the lobule of the ear. Fig. 85 (after Dr. A. Corre) represents the parasite: the average length is the $\frac{1}{8}$ of an inch, and the breadth that of a red blood corpuscle: A gives the appearance of the living, and B that of the dead, animal. No organs can be distinguished, but Dr. Corre regards a slight constriction of the anterior extremity as characteristic. Its movements are very active.

ISCHURIA RENALIS.—SUPPRESSION OF URINE.

SYMPTOMS.—Languor, restlessness, weariness and weight in the loins and legs, frequent pulse, hot skin, flushed face, headache, nausea, and vomiting. About the third day drowsiness and œdema of the face, or general anasarca follow. Some hours afterwards epileptiform convulsions, often very violent and frequent, come on, and after three or four attacks the patient falls into a state of profound coma, and dies. At the onset, a small quantity of muddy urine may be voided; but when the disease is fully formed, there is anuria, or complete suppression.

In some cases, there is neither pain in the loins nor fever, but only slight nausea and drowsiness. During the second or third day the patient becomes comatose, and dies in from 24 to 30 hours. In some cases, the suppression is a consequence of retention of urine in the kidney from obstruction of the ureters, and in these the disease sets in with excruciating pain, which at length subsides; and the patient becomes drowsy and dies comatose.

CAUSES.—Chronic disease of the kidney, aggravated by exposure to wet and cold. The action of certain poisons, as digitalis, arsenic, corrosive sublimate, and cantharides. Acute inflammation of the kidney. Mechanical obstruction in the ureters. The infectious fevers.

DIAGNOSIS.—From *retention of urine* by the empty state of the bladder as ascertained by the hand, or the catheter.

PROGNOSIS.—*Unfavorable* in chronic disease of the kidney; *more favorable* when it occurs in acute disease.

TREATMENT.—*Indications.* I. To promote the elimination of urea by copious purging and diaphoresis; gr. i. of elaterium, or ℥ii. of croton oil should be given immediately, and a hot-air bath. The function of the kidney may be aroused by the injection of the $\frac{1}{8}$ of a grain of atropia beneath the skin.

II. If acute nephritis be present, $\frac{3}{4}$ x. or $\frac{3}{4}$ xx. of blood may be taken from the arm, or the loins may be cupped or leeches, and hot stimulating fomentations subsequently applied.

III. The head symptoms must be treated by blisters to the forehead and nape, and if the head be hot, by a bladder of ice to the vertex.

DIABETES.—IMMODERATE FLOW OF SACCHARINE URINE.

SYMPTOMS.—That which first attracts attention is frequent micturition. The urine is excessive in quantity, of a pale straw color, of a peculiar faint odor resembling hay, has a sweet taste, and contains more or less sugar. There is inordinate appetite, excessive thirst, and constipation, the stools being dry and hard. The tongue is clammy, and red at the edge, or clean, or white with a brown streak down the middle; the gums are red and tender; the throat dry; the breath has often a sweetish odor, like that of hay; and the skin is dry and harsh. The patient is weak and loses flesh; and becomes anxious, sad, and irritable. After the disease has continued for some months, or even for several years, the symptoms continuing to increase, the emaciation becomes extreme, and the patient either dies of exhaustion or phthisis. Death often comes suddenly, and therefore unexpectedly.

In some cases the sugar disappears from the urine and reappears after a variable interval. Sugar is frequently present in small quantity in the urine of old people, without producing injurious effects.

PATHOLOGY.—The following facts have been established:—I. Sugar invariably exists in minute quantity in the blood of the hepatic veins, and rapidly increases after death. II. A substance (*glycogen*) may be artificially separated from the liver, which under the influence of saliva, pancreatic fluid, blood, liver tissue, etc., gives the reaction of grape sugar. III. Glycogen is formed with equal facility and abundance when the food consists of nitrogenized matter only, saccharine or starchy articles of diet being unnecessary for its production.

From these facts Bernard infers that sugar is formed in the liver during healthy assimilation; that it passes out of it into the blood of the hepatic veins; and is carried to the lungs, where it undergoes oxidation and conversion into carbonic acid and water, which are eliminated as such from the lungs.

According to this theory, the liver and lungs have a reciprocity of function in the generation and destruction of sugar; and the most obvious explanation of the appearance of sugar in the urine is, that the reciprocal action of these two great glands have become disproportionate the one to the other. Thus, under certain abnormal conditions, the liver may generate a larger amount of sugar than could be destroyed in a single circulation through the lungs, and sugar enters the general circulation, and is separated by the kidneys. Again, when only a normal quantity of sugar is separated by the liver, disease or functional derangement of the lungs may render these organs inadequate to perform their sugar-

destroying function, and thus also the saccharine matter would pass into the general circulation.

But according to Dr. Pavy, glycogen is not normally converted into sugar in the liver. He supposes that it ought to be converted into fat, and that it is only when the function of the liver is disturbed, as in diabetes, that it undergoes metamorphosis into sugar. He believes that this metamorphosis is the result of the changes which commence immediately after the death of the animal. He bases this conclusion upon a frequently repeated observation, that the blood of the right side of the heart of a living animal contains only that trace of sugar (about one grain in 1000 parts) which can be detected in the blood of the left side of the heart. It appears, then, that we must regard the generation of sugar in the liver as a result of derangement or perversion of its function. Amongst the causes of this specific derangement are irritations of the pneumogastric nerve and brain. Thus, Dr. Bernard induced diabetes by irritating the pneumogastric nerve at its origin in the floor of the fourth ventricle. Dr. Goolden observed that diabetes was a frequent result of blows on the head; and we have had several opportunities of convincing ourselves of the accuracy of his observations.

MORBID ANATOMY.—The kidneys vascular and hypertrophied; rarely presenting granular degeneration. Tubercular deposit in the lungs; shrunken condition of the brain.

COMPLICATIONS and SECONDARY DISORDERS.—Pulmonary phthisis (the most common complication); granular degeneration of the kidney; peritoneal inflammation; anasarca; apoplexy.

PROGNOSIS.—*Favorable.* The intermittent form of the disease; a short previous duration; urine not exceeding 12 pints in quantity and 1036 in density; the emaciation inconsiderable; the appetite and thirst not excessive; the skin still soft and moist; and the mind tranquil. When the patient is under treatment, the signs of improvement are a decrease in the quantity of the urine and of solids discharged, increase of weight, strength, and activity, moderate appetite and thirst, the mind becoming clearer and more cheerful. *Unfavorable.* Prolonged duration of the disease, great emaciation, and rapid diminution of strength, the supervention of pulmonary or renal disease, great and sudden prostration of strength.

CAUSES.—*Predisposing.* Hereditary tendency.—*Exciting.* Phthisis; injuries of the head.

DIAGNOSIS.—Excessive diuresis; 8 gallons of urine are sometimes voided in the 24 hours; 2 gallons being about the usual quantity. The specific gravity ranging between 1030 and 1070. It has a sweet taste, and on evaporation leaves a white powder or sticky residue—sugar. The quantity of sugar passed in the 24 hours varies from half a pound to three pounds. For the mode of detecting sugar in the urine, and of ascertaining its quantity see Vol. I., p. 124.

TREATMENT.—I. The diet should consist chiefly of animal food, broiled or roasted, with a small quantity of stale and well-fermented bread; and liquids in moderate quantity, of which the best are weak beef or mutton tea, milk, pure spring water, or water holding calcareous salts in solution. Gluten and bran bread may be substituted with advantage for common bread. The liver, indeed, readily converts albuminous substances into sugar; but when the diet is restricted to azotized food, the sugar decreases.

II. The quantity of fluid should be limited, and spirituous liquors, saline aperients, and all articles of diet or medicine which have diuretic properties, avoided. The secretion of the skin may be assisted by warm baths, friction, and warm clothing; and by opium in small and repeated doses, as v. to x. grains of Dover's powder two or three times a day. I have found ergot (℥ x. to xxx. of the liquid extract twice a day), most valuable in the treatment of diabetes.

III. The intense thirst is best relieved by iced water acidulated with phosphoric acid. Claret is a suitable drink.

IV. The strength must be supported, and the disease kept in check by the administration of ℥xx.-℥xl. tincturæ ferri perchloridi twice or thrice a day, and a full dose of opium at bedtime every other night. Constipation should be relieved by resinous purgatives; and debility, when extreme, by tonics and stimulants.

In one case that was under my care, a young female continued for months to pass large quantities of saccharine urine without losing flesh or suffering in health. She took no medicine, except a simple tonic infusion, and continued, though not very strictly, a diet containing an excess of animal food. It is evident that no part of the sugar was formed at the expense of the structures of the body. So long as a patient does not lose flesh, it is probably inexpedient to adopt any other treatment. (G.)

DIURESIS.—IMMODERATE FLOW OF URINE.

The passage of large quantities of watery urine is a direct result of the excessive use of fluids, especially of spirituous liquors. It also occurs during functional irritation of the kidney, at the end of the hysterical fit, and after other mental agitation.

The term chronic diuresis is used by Dr. Watson to designate the condition which has been wrongly named *Diabetes insipidus*. The disease, or rather symptom of disease, consists in the excretion of large quantities of urine only differing from that of health in containing more water, or more or less urea than normal. These variations have been significantly termed by Dr. Willis, *hydruria*, *azoturia*, and *anazoturia*, respectively. When the urea is in excess the specific gravity of the urine is unusually high. In the other varieties it is exceedingly low. The diuresis is commonly associated with thirst, and some disorder of the digestion.

The treatment must be directed to the regulation of the cutaneous and gastric functions.

DISEASES OF THE BLADDER.

CYSTITIS	Inflammation of the Bladder.
ENURESIS	Incontinence of Urine.
DYSURIA	Difficulty in voiding the Urine.
IRRITABLE BLADDER.	

CYSTITIS.—INFLAMMATION OF THE BLADDER.

1. ACUTE CYSTITIS.

SYMPTOMS.—Pyrexia; acute pain, swelling, and tension in the region of the bladder; pain and soreness, increased upon pressure above the pubes, or in the perineum; frequent micturition; painful discharge of urine, in small quantities, or complete obstruction to its passage; tenesmus; vomiting.

CAUSES.—Mechanical injury; falls on the abdomen when the bladder is distended; local irritation by calculi; gonorrhœal inflammation extending along the urethra; spasmodic or permanent stricture; all the usual causes of inflammation; cantharides; stimulant urethral injections; cold (*catarrhus vesicæ*).

TREATMENT.—Leeches to the perineum, followed by a hot bath and fomentations, and a brisk saline purgative combined with a full dose of opium.

The condition of the urine must be carefully determined. If it be hyperacid, alkalies; if alkaline, acids, with opium, should be given.

When ammoniacal, the bladder should be washed out daily with carbolic acid water (1 part to 40).

2. CHRONIC CYSTITIS.—CYSTORRHOEA.

SYMPTOMS.—The discharge of an increased quantity of mucus with the urine, with slight symptoms of inflammation of the bladder.

CAUSES.—Diseases of the prostate, urethra, ureters, or kidney. Stone in the bladder. Ulceration of the mucous membrane. Retention of the urine in cases of paralysis due to spinal disease. Obstruction to the flow of urine out of the bladder.

If the urine remain long in the bladder it undergoes decomposition; the urea assimilates four equivalents of water, and is converted into carbonate of ammonia, which sets up chronic inflammation, and the urine becomes bloody, and highly offensive.

PROGNOSIS.—*Unfavorable* in the aged and intemperate, especially when associated with paralysis, or renal disease.

TREATMENT.—In simple cystorrhœa the use of *nva ursi*, *buchu*, *pareira*, *cubebs*, *copaiba*, black pepper, combined with mineral acids. The irritability of the bladder is relieved by emollient injections, such as decoction of marsh-mallows with laudanum, and by hot fomentations. The feet should be kept warm, and the patient protected against cold.

If the urine be ammoniacal, bloody, offensive, and loaded with mucus, the bladder should be frequently washed out by the double-channelled catheter, with warm water slightly acidulated with hydrochloric or nitric acid, or carbolic acid water (1 pt. in 40). In cases of paralysis, the urine should be drawn off at least twice a day.

ENURESIS.—INCONTINENCE OF URINE.

Incontinence of urine may arise from mechanical causes, or from functional derangements of the bladder. The latter class comes within the province of the physician.

CAUSES.—Incontinence of urine, without organic defect, may arise from one of two causes; violent contraction of the bladder, the sphincter possessing its usual power; or relaxation of the sphincter, the bladder retaining its normal contractile power. In the first case, there is generally some source of irritation within the bladder, the urine being hyperacid, or containing acicular crystals of uric acid; but in rare instances the muscular fibres are thrown into spasm without obvious cause. The first form is most common in males; the second in females and children.

TREATMENT.—In incontinence arising from spasm the most effectual remedy is henbane combined with carbonates of the alkalies, or with acid, according as the urine is hyperacid or alkaline. A grain of solid opium as a suppository or half a drachm of laudanum in a wineglassful of mucilage of starch, injected into the rectum, will generally succeed in relieving the spasm. If lithiasis be the cause of the incontinence, the appropriate remedies must be employed. (See p. 194.)

In incontinence arising from debility of the sphincter, two or three drops of tincture of cantharides, with ten drops of tincture of perchloride of iron, rarely fails to relieve the symptoms. I have had several cases of this kind, which have received immediate benefit and a speedy cure from this mode of treatment. In one case, occurring in a young adult, after cantharides had failed, *tinctura ferri perchloridi* in the dose of 3 ss. three times a day effected a speedy cure. (G.)

In many cases the urine is perfectly retained during the day, and voided only at night. These require the same treatment.

DYSURIA.—DIFFICULTY IN VOIDING URINE.

Dysuria may exist in every degree, from slight and momentary arrest

of the flow of urine, with or without pain, to complete retention. Some degree of pain generally attends the abortive attempts to discharge the urine, and in severe cases the suffering is intense.

CAUSES.—Long retention or acidity of the urine; irritation or inflammation of the coats of the bladder. Gonorrhœa, inflamed prostate, gravel, urinary calculus, cystitis and nephritis, inflamed hæmorrhoids, inflammation or irritation of the rectum, uterine affections, pregnancy, etc. *Strangury*, an aggravated form of dysuria, is produced by cantharides and other strong irritants. Dysuria is also a symptoms of hysteria, and may occur in nervous persons of both sexes. The mechanical causes are stone in the bladder, stricture of the urethra, abscesses in the perineum, prostatic tumors, displacements of the uterus.

TREATMENT.—This must depend on the cause. Of causes external to the bladder, constipation is the most common; and a brisk purgative, or a proper course of aperients, will soon remove the disease.

Spasm of the muscular coat requires the use of the warm bath with opiate suppositories or enemata. When the spasm is of frequent occurrence, tincture of the muriate of iron in repeated doses.

When the urine is scanty and acid, alkaline diuretics, and diluents will be required. Dysuria following long retention of urine is best relieved by the warm bath.

IRRITABLE BLADDER.

Some persons are subject to constant calls to void urine, as others are troubled with diarrhœa. They suffer much when confined in churches, courts of law, railway trains, etc., etc., and much more (as a rule) early in the day than in the evening. It is natural that such persons should have their sufferings increased by nervous apprehension. The treatment will consist in the scrupulous avoidance of spirituous liquors and all known diuretics, and of liquids, in excess, on the eve of travelling or of detention. When opium is borne well, a small dose of the tincture may be taken by way of precaution. Those who suffer most from this cause should wear habitually, or as occasion requires, a suitable flexible and watertight apparatus, to be had of surgical instrument makers.

CHAPTER VI.

DISEASES OF THE ORGANS OF GENERATION.

AMENORRHŒA.	FIBROUS TUMORS.
DYSMENORRHŒA.	PELVIC HÆMATOCELE.
MENORRHAGIA.	UTERINE DISPLACEMENTS.
LEUCORRHŒA.	OOPHORITIS.
METRITIS.	OVARIAN TUMORS.
DISEASES OF THE OS AND CERVIX UTERI.	GONORRHŒA.
CANCER OF THE UTERUS.	SYPHILIS.
	SPEERMATORRHŒA.

AMENORRHŒA.—ABSENCE OF MENSTRUAL DISCHARGE.

SPECIES.—1. Amenorrhœa from organic deficiency. 2. Amenorrhœa from functional derangement.

1. ORGANIC AMENORRHŒA.

CAUSES.—Absence of the ovaries; disease or defective development of the ovaries; absence or defective development of the uterus or vagina. Treatment, with a view to the establishment of the function, is of course useless in such cases.

2. FUNCTIONAL AMENORRHŒA.

VARIETIES.—(a.) Primary suppressed menstruation. (b.) Amenorrhœa with plethora. (c.) Amenorrhœa with anæmia or chlorosis.

(a.) PRIMARY SUPPRESSED MENSTRUATION.

The age at which menstruation begins is very variable. In this country it may be as early as the tenth, or as late as the twentieth, year. In most cases it comes on between the ages of fourteen and fifteen. (See p. 80, last edition, Dr. Guy's For. Med.)

The discharge is usually preceded by the following symptoms:—A little languor, flushing of the face, throbbing headache, and aching pain in the loins. In some cases there is also well-marked pyrexia. After a few hours an oozing of thin non-coagulable dark-colored blood of acid

reaction appears, continues for a variable period, usually three or four days, and then ceases, the whole quantity discharged being usually about six ounces.

In many cases the menstrual nixus occurs and recurs with increasing severity every month without any sanguineous discharge. Such are cases of primary suppressed menstruation.

TREATMENT.—When the above-mentioned symptoms come on, a brisk aloetic purge, followed by Form. 285, and a hot hip bath. Strict attention must be paid to the general health in the intervals. Moderate exercise should be taken, and fatigue and exposure to cold and wet avoided.

In the *chronic* form the menstrual nixus is absent, and the general health is delicate. In such cases we may give chalybeate tonics, combined with stimulants, to improve the general health, and at suitable periods we may endeavor to elicit the menstrual flow by the exhibition of emmenagogues. (Form. 286.) If these fail, we may try electricity. The best emmenagogues are the remedies and modes of treatment which tend to restore the health and strength of the patient.

(b.) AMENORRHŒA WITH PLETHORA.

The general symptoms and constitutional treatment are those of plethora. (See Vol. I., p. 240.) When blood is abstracted, it should be taken away at the approach of the menstrual period.

(c.) AMENORRHŒA WITH ANÆMIA OR CHLOROSIS.

For a description of the constitutional symptoms and treatment of anæmia and chlorosis, see Vol. I., p. 241 *et seq.* Amenorrhœa is often the first symptom of anæmia and chlorosis; or it may make its appearance after these states have existed for a considerable period.

In addition to the general treatment of anæmia, it is sometimes necessary to prescribe the measures for the restoration of the menstrual discharge mentioned under the first variety of the disorder.

Amenorrhœa is sometimes attended by vicarious or supplemental discharges of blood, or of blood slightly altered, from the nose, lungs, stomach, or rectum, and from ulcers, or even from the skin itself. These discharges, if occurring in important organs, require medical interference, and are the best treated by leeching and purging, a little before they are expected.

The catamenia are normally absent during gestation and lactation. Some women, however, menstruate during pregnancy only; and others during lactation.

The *complications* of amenorrhœa are extremely numerous, and must be treated by remedies appropriate to them, combined with such as restore strength, and tend to re-establish the menstrual discharge.

DYSMENORRHOEA.—PAINFUL MENSTRUATION.

SYMPTOMS.—Pain in the loins preceding the menstrual period by a few hours or days; tenderness in the hypogastric region; and sometimes over a considerable extent of the abdomen; soreness or acute darting pains, resembling those of colic, and occurring mostly in paroxysms; vomiting; diarrhoea with tenesmus; dysuria. Hysteria is often present. These symptoms increase in severity until the appearance of the catamenia, and then cease suddenly or gradually. Severe cramp, with rigors and coldness of the surface, almost amounting to collapse, precede the flow in some cases. The discharge is often scanty, and is sometimes accompanied by a membranous formation (decidua) moulded to the internal surface of the uterus.

CAUSES.—*Predisposing.* The rheumatic diathesis; the nervous temperament.—*Exciting.* Sudden and violent emotions; increased determination of blood to the uterus; sexual intercourse immediately before the expected flux; constipation; spinal irritation; exposure to cold; mechanical obstruction from organic or spasmodic constriction of the cervical canal, or from retroflexion of the uterus.

PROGNOSIS.—*Favorable.* Most cases admit of cure, or relief, by the improvement of the health, and proper local treatment.

TREATMENT.—I. When there is plethora, the application of leeches to the vulva, or cupping-glasses to the loins; tepid, hot, or vapor baths; opium and henbane alone, or with small doses of tartarated antimony frequently repeated.

II. Careful attention to the functions of the stomach and bowels, moderate depletion to meet any irregular determination of blood, and strict attention to the general health.

Organic impediments must be removed, if possible. Stricture of the cervical canal may be relieved by graduated bougies carefully introduced. Those made of the *Fucus Laminaria* are objectionable.

MENORRHAGIA.—EXCESSIVE MENSTRUATION.

The menstrual flux is excessive, when the intervals are less than three weeks, or when it continues longer than six days, and is abundant during the whole time. It may be the effect of plethora (*active m.*); or of general relaxation or debility (*passive m.*).

SYMPTOMS.—Menorrhagia, from plethora, is usually preceded by acute pains in the head and loins, a sense of heat, fulness, and throbbing in the pelvis, turgid flushed countenance, universal heat, and a strong, hard pulse; when, on the contrary, the symptoms of debility prevail, the pulse is small and feeble, the face pallid; there is dull aching pain in the back and loins, and in nervous persons the group of symptoms described under *Mimosis Inquieta*. (See Vol. I., p. 246.)

CAUSES.—*Predisposing.* Plethora; laxity of the womb from frequent parturition; displacement of the womb; difficult and tedious labors, or repeated miscarriages; a sedentary and inactive life; heated apartments, and all causes of debility.—*Exciting.* Violent exercise; blows or concussions; straining at school; tight lacing; sexual excess, particularly during menstruation; exposure to wet and cold; congestion or ulceration of the mucous membrane; uterine tumors. Menorrhagia is common in women at or shortly after the change of life.

PROGNOSIS.—*Favorable*, if it be not of very long standing, or dependent upon organic disease.

TREATMENT.—The treatment of menorrhagia consists in—

1. Reducing the febrile symptoms and the plethoric condition of the pelvic circulation by free purgation, gr. x. of colocynth and blue pill, followed by a saline (Form. 242) with ℥xx. tincture of henbane.

2. When the febrile symptoms are subdued, astringents (Form. 149).

If the hæmorrhage be profuse, cold water should be injected into the rectum and vagina. If this does not suffice, injections of alum or tannic acid should be used. Plugging the vagina is to be avoided on hygienic grounds.

The patient should keep the horizontal posture on a hard mattress. The clothing should be light, and the regimen cooling.

3. When symptoms of debility are present, tonics or stimulants, in combination with sedatives, are required.

LEUCORRHŒA.—THE WHITES.

DEFINITION.—Discharge of a milk-white or glairy mucous fluid from the orifice of the vagina.

VARIETIES.—1. Vaginal. 2. Uterine.

1. VAGINAL LEUCORRHŒA.—VAGINITIS.

SYMPTOMS.—Pain and soreness, with heat and fulness of the vagina; vesical and urethral irritation, resulting in frequent micturition, pain, and dysuria; soreness and itching of the vulva; a thin colorless acid discharge becoming, in the chronic form of the disease, more or less creamy or purulent. The vagina is swollen and tender, and the mucous membrane, which is naturally of a pale rose tint, is uniformly dark red, and inflamed. This is an uncommon form of the disease.

DIAGNOSIS.—There are no characters by which simple vaginitis may be distinguished from the gonorrhœal variety. The character of the patient and of her husband, if she be married, must decide the diagnosis. Some observers are of opinion that simple leucorrhœa may, by contact, induce both urethral discharge and preputial sores in the male. From the uterine variety, it is distinguished by the absence of inflammation of,

and discharge from, the os uteri, by the thinner and more acid nature of the discharge, and by the circumstance that vaginal leucorrhœa is not increased before or after the time of menstruation. There is also an absence of uterine symptoms, and the health suffers less.

CAUSES.—Simple vaginitis usually results from direct irritation : *e.g.*, pessaries in the vagina; violence in sexual intercourse, irritation of the rectum from piles or ascarides. It is often associated with excessive acidity of the urine.

TREATMENT.—*General*, saline alkaline aperients, and the hip-bath.—*Local*, the removal of any sources of irritation which may be present; injections of warm water, and afterwards of astringents (Form. 172, 176).

In the chronic form the most scrupulous cleanliness is required. Zinc or alum injections should be used twice a day; and quinine or the astringent chalybeates should be prescribed.

2. UTERINE LEUCORRHOEA.—INFLAMMATION OF THE CERVICAL CANAL.

SYMPTOMS.—The discharge of an inodorous white creamy fluid varying in quantity from a slight increase of the natural secretion to several ounces in the day, increased largely immediately before and after menstruation, and sometimes taking its place. Pain and weakness of the loins, excessive debility, and a sense of bearing down in the pelvis; the vagina is relaxed, and the os uteri lower than normal; the cervix uteri is swollen, and the os red, congested, patulous, and occupied by a glairy secretion like white of egg. As this passes down the vagina, it becomes altered by its acid secretion into a creamy fluid. The general health suffers in a marked degree; the appetite is lost or impaired; the bowels are constipated, or irritable. Spinal irritation is often present, and the symptoms described under *Mimosis Inquieta* (Vol. I., p. 246).

CAUSES.—Inflammation of the os and cervix uteri; the discharge is derived from the extensive glandular surface which Dr. Tyler Smith has shown to line the canal of the cervix uteri. Debility, suppressed menstruation, abortion, frequent parturition, lactation, and congestion of the cervix uteri, all predispose to this condition.

TREATMENT.—I. Must be directed to improve the general health by the judicious use of saline aperients and tonics, moderate exercise, rest of the sexual organs, cold bathing, and, if need be, change of air. II. The local treatment will consist in the use of cold water or astringent injections (Form. 174). When much irritability is present, opiate injections may be required; and if there be much congestion, or signs of local inflammation, a few leeches may be applied to the neck of the uterus.

The remedies which act on the mucous membrane through the general system are given in the formulæ.

METRITIS.—INFLAMMATION OF THE UNIMPREGNATED UTERUS.

1. ACUTE METRITIS.

SYMPTOMS.—Pain, increased by pressure, in the region of the uterus, and in the cervix on examination per vaginam; pain extending to the loins and thighs; dysuria; a sense of weight and bearing down; swelling of the abdomen and tympanites. These local symptoms are generally accompanied by fever, with nausea and vomiting. In the most severe cases, there are slight delirium, drowsiness, extreme prostration of strength, diarrhœa, and subsultus tendinum. At first there is no vaginal discharge, but after a day or two, an abundant and often offensive purulent, or muco-purulent, discharge, occasionally tinged with blood, appears. The uterus is slightly enlarged, and very tender to the touch, and the arteries of the cervix pulsate strongly.

MORBID ANATOMY.—The substance of the uterus inflamed and enlarged, œdematous, and softened; in severe cases, pus is infiltrated through its tissue; or an abscess is formed in it. Purulent matter may also be found in the veins of the pelvic areolar tissue, and in the folds of the broad ligament. Swelling and redness of the mucous membrane.

CAUSES.—*Predisposing.* Those of inflammation generally.—*Exciting.* Suppression of the menstrual discharge from cold; extension of gonorrhœal inflammation; physical injuries; blows and falls.

TREATMENT.—Leeches to the vulva or groins; a free saline aperient followed by calomel and opium (Form. 295), hot fomentations, turpentine stupes, or sinapisms, a hot hip-bath. Dysuria may be relieved by mucilaginous drinks, and the bowels should be kept free by gentle saline aperients, or by castor oil.

2. CHRONIC METRITIS.

This is a common consequence of the acute form, when neglected or badly treated. It may lead to severe structural lesions of the uterus, such as ulceration, suppuration, membranous inflammation, and enlargement and induration of the mucous follicles and muscular structure of the organ.

INFLAMMATION OF THE OS AND CERVIX UTERI.

1. SIMPLE CONGESTION AND ULCERATION.

SYMPTOMS.—Uterine leucorrhœa, occasionally tinged or streaked with blood; pricking, darting, or throbbing pain in the situation of the os uteri; great irritability of the bladder; a sense of bearing down. Action of the bowels, sitting, and sexual intercourse produce pain. The pain increased before the appearance of the catamenia, and usually absent for a short time afterwards. The menses unusually profuse.

The os uteri is low down, swollen, and tender, and the hard and painful glandular tissue can be felt through the mucous covering. The cervix is enlarged, congested, and presents superficial ulceration of variable extent on one or other side of the os. The ulcerations are depressed, and usually present healthy granulations. In chronic cases the granulations are angry-looking, and the edges of the ulcer thickened.

TREATMENT.—The *general* treatment will be the same as that for inflammation of the os and cervix uteri. (See Uterine Leucorrhœa.)

The *local* treatment consists in the use of mild zinc injections, and the repeated applications of nitrate of silver, solid, or as in Form. 163. When the cervix is within the patient's reach she may occasionally apply the Unguentum hydrargyri nitratis.

2. CORRODING ULCERATION.

SYMPTOMS.—Pain and weakness in the loins; with pelvic pain and uneasiness, sometimes of an acute burning or cutting nature, excited and increased by the passage of hardened fæces. At first there is leucorrhœa, subsequently a thin watery yellowish discharge, occasionally tinged with blood; as the ulceration spreads, attacks of profuse hæmorrhage, which sometimes recur so often as to endanger life. The finger detects a loss of substance; the cervix is shorter or altogether absorbed, but the eroded surface is soft and rarely very uneven; there is no induration about the edges or base of the ulcer, the whole surface of which has a pulpy feel. Pressure with the tip of the finger does not produce pain, but merely a sensation of soreness. The ulcer has a ragged excavated appearance, and is covered with ashy-gray débris; when these are removed a raw bleeding surface is exposed. In severe cases the ulceration extends to the contiguous parts of the vagina. The fundus of the uterus is unaffected, and easily moved.

The patient becomes anæmic and exhausted by the repeated hæmorrhage due to the erosion of blood-vessels; and if the disease be not speedily checked, she dies of asthenia.

DIAGNOSIS.—From cancerous ulceration by the absence of induration, of acute pain on pressure, and of paroxysms of darting pelvic pain, by the *mobility* of the uterus and the limitation of the disease.

PROGNOSIS.—*Unfavorable*, but if we can treat the disease early, we may arrest, and in some cases cure it.

TREATMENT.—Must be directed to improve the health by astringent tonics and nutritious food; and to check the erosion by the application of strong nitric acid, the acid nitrate of mercury, nitrate of silver, or the actual cautery. The most efficacious is the actual cautery. When the eschar separates the caustic should be again applied if the surface does not present a granular appearance. When healthy granulations appear, we may expect a permanent cure. The vagina should be frequently injected with astringent lotions.

CANCER OF THE UTERUS.

VARIETIES.—1. Medullary. 2. Epithelioma (cauliflower excrescence).

1. MEDULLARY CANCER.

SYMPTOMS.—Paroxysms of deep-seated pain in the pelvis readily induced by evacuation of the bowels or bladder, menstruation, or sexual intercourse. The paroxysms gradually lengthen, the pain assumes a sharp neuralgic or lancinating character, and the menstruation becomes irregular. Menorrhagia is an early and prominent symptom. There is a sense of weight and fulness in the pelvis. The cervix is enlarged and hard, the os uteri patulous, and its margins hard and deeply notched; pressure produces acute pain; the body of the uterus is enlarged, and loses much of its mobility. The os and cervix appear swollen, tense, and of a mottled red, or purplish color; in many cases the mucous membrane retains its natural appearance. The indurated tissue soon begins to ulcerate and break down, and a watery, greenish, very fœtid discharge, occasionally tinged with blood, appears; with frequent hæmorrhage. The enlarged cervix becomes soft and ragged, and the finger may be readily passed into the uterus, the walls of which feel partly pulpy and partly nodular. The fundus is firmly fixed in a solid mass which surrounds it. The degeneration and ulceration slowly extend backwards, involving the rectum; or forwards, implicating the bladder. The walls of both these cavities are sometimes destroyed, and the contents mingle in the vagina with the uterine discharges, and are in part evacuated through the vulva. The health rapidly declines, the stomach sympathizes and food is rejected, the cachexia and emaciation are extreme, and the patient dies, worn out by excruciating pain and excessive discharges.

DIAGNOSIS—Hæmorrhage, and in the intervals a watery fœtid discharge; deep-seated paroxysms of lancinating pain; indurated enlargement of the os and cervix uteri; *immobility* of the fundus; emaciation and a sallow cachectic appearance are positive indications of the cancerous nature of the disease.

TREATMENT.—In the early stage, when the disease is limited to the vaginal portion of the cervix, its removal by means of the *écraseur*. Later on the treatment must be palliative only—the application of caustics does harm. The general treatment will consist in the exhibition of chalybeate tonics, iodide and bromide of potassium, combined with tonic infusions. The pain and irritability of the stomach may be relieved by alkalies in a state of effervescence, combined with hydrocyanic acid. When the stomach will bear it, cod-liver oil may be given to counteract the emaciation. The strength should be sustained by wine and light nutritious diet administered frequently in small quantities. Sleep must be procured, and the uterine pain alleviated by occasional doses of opium. Opiate suppositories and injections may be employed

with the same view. The vagina must be frequently washed out with warm water, to which a little carbolic acid has been added, to destroy the fœtor of the discharges. The most scrupulous attention to cleanliness will be required; especially when the disease opens the rectum or bladder.

2. EPITHELIOMA (CAULIFLOWER EXCRESCENCE).

SYMPTOMS.—A copious watery offensive discharge, occasionally streaked with blood, from the vagina; occasionally profuse florid hæmorrhage, induced by sexual intercourse, straining at stool, or any other direct cause of congestion or irritation; a rough villous insensible mass of a florid color, and a granular or villous structure, bleeding freely when handled, is felt attached to the os uteri at some part of its circumference. Its growth is rapid, and it sometimes attains such a size as to occupy the whole of the vagina and protrude between the labia. The disease is limited to the uterus, and if removed is speedily reproduced. The patient rapidly becomes anæmic, and dies of asthenia.

DIAGNOSIS.—The structure and appearance of the tumor and its origin, by a broad base from the os uteri, are conclusive as to its nature.

TREATMENT.—The *general* treatment will consist in the exhibition of the astringent chalybeates combined with the mineral acids; the only efficient *local* treatment is removal of the tumor and contiguous part of the cervix uteri by the écraseur or galvanic cautery; followed by astringent injections.

FIBROUS TUMORS OF THE UTERUS.

These occur, I. As interstitial growths within the muscular walls. II. As isolated fibrous or fibro-cartilaginous masses developed within the walls, and projecting more or less from them. As pedunculated growths attached to the outer, or more frequently, to the inner surface of the uterus (*Uterine polypi*).

The *first* and *second variety* often form enormous growths, sometimes weighing more than fifty pounds, and are accompanied by hypertrophy of the uterus and enlargement of its cavity. They are composed of white fibrous or of fibro-cartilaginous tissue, and have very little vascularity. They are of gristly, and occasionally of bony hardness. Their color is grayish-white, and the section is pervaded by intersecting or concentric bands of white fibrous tissue. The first variety of tumor is continuous with the uterine tissue; the second, which is almost always composed of fibro-cartilage, is surrounded by a distinct areolar investment, which, by limiting it, allows of its ready separation from the contiguous uterine tissue. Usually there are more than one of these tumors. In projecting outwards towards the peritoneal cavity, or inwards towards the mucous surface, they sometimes become almost completely invested, in the former case with peritoneum, in the latter with mucous membrane, and

so come to form large pedunculated growths. Cysts are occasionally formed in the interior of these tumors.

The *symptoms* which attend the development of the first and second variety are precisely similar. They are usually so obscure that the tumor attains a considerable size before it attracts attention, and then the patient supposes that she is pregnant or dropsical. When the rectum or bladder are pressed upon, there will be frequent desire to evacuate the fæces and urine, and more or less difficulty will probably attend these acts. The menstrual function is sometimes interfered with, sometimes not. In the majority of cases the discharge is more profuse than usual, and it comes on at irregular intervals; occasionally there is dysmenorrhœa. The os and cervix uteri are felt to be natural; but around and above the latter there is a hard rounded mass, filling up the sacral cavity. If the other hand be placed upon the lower part of the abdomen, a large hard nodular mass may be tilted against it by pressing the tumor upwards with the finger. The uterine sound readily passes, sometimes in one direction, sometimes in another, an unusual distance within the uterine cavity, proving that it has undergone considerable enlargement.

The health is unaffected so long as the pressure of the tumor does not produce derangement of the contiguous viscera or blood-vessels.

Treatment.—The treatment of the first variety must be purely constitutional. With a view of reducing the tumor and preventing its further development, chloride of calcium, iodide or bromide of potassium, and the Kreuznach waters have been recommended.

Enucleation has been proposed for the second variety; but the operation has been attended with so large a proportion of deaths that we deem it unjustifiable. When self-enucleation of the tumor has been nearly effected, we may facilitate its expulsion from the uterine cavity by dilating the os and cervix and administering ergot.

The *third variety* of fibrous tumors (*uterine polypi*) give rise to much more serious *symptoms*. These are leucorrhœa and hæmorrhage, which increase in severity and endanger the patient's life. At first the menstrual periods are protracted, then the discharge becomes more profuse. In the intervals there is profuse leucorrhœa. After a time the sanguineous discharge becomes continuous, and is attended by constant bearing down or dragging sensation. On examination, the os uteri is felt low down and patulous, and on passing the finger within the orifice a firm rounded projection may be felt, which can only be mistaken for the inverted fundus. The *diagnosis* is readily effected by means of the uterine sound; in the case of the pedunculated tumor, the cavity is enlarged, while in inversion of the fundus it is diminished. If the cervical canal be contracted it must be dilated with a sponge tent in order to ascertain the existence of a tumor.

Treatment.—The only efficient treatment consists in the removal of the tumor. The os uteri having been dilated, the tumor must be seized

with a hooked forceps and pulled downwards, and a ligature passed round the pedicle. Whenever it is practicable, the pedicle should be severed by the *écraseur*, or blunt scissors; for the putrefactive process which follows ligature without subsequent removal of the tumor, is very liable to set up putrid fever and endanger the patient's life.

PELVIC HÆMATOCELE.

SYNONYMS.—Uterine, peri-uterine, and recto-uterine hæmatocele.

During the intense vascular excitement of the menstrual periods, the congested vessels of the ovary or fibrated extremity of the Fallopian tube may break and lead to effusions of considerable quantities of blood into the recto-uterine pouch. This accident of menstruation is most frequent between the ages of twenty and thirty, the period of greatest sexual vigor.

SYMPTOMS.—Usually after sudden suppression of the menstrual discharge, severe abdominal pain, undergoing increase at intervals, tenderness of the lower parts of the abdomen, difficulty and pain in micturition and defæcation; usually pain in flexing one or other thigh; increased fulness of the abdomen. The pelvic tumor differs much in size and situation; but it usually bulges the posterior wall of the vagina, tilts the body of the uterus forwards, and feels hard and solid. If all go on well, the pain and fever subside, and the blood begins to be absorbed. During the process, which is a slow one, there remains some difficulty in evacuating the contents of the bladder and rectum; there is weight and bearing down in the pelvis, and walking causes pain or inconvenience. The effused blood sometimes sets up pelvic inflammation, and the clot, becoming imperfectly encysted, breaks down into pus. The abscess may burst into the vagina, rectum, bladder, intestine, or into the peritoneal cavity.

TREATMENT.—At the time, complete rest, a drastic purgative (Form. 253), followed by a full dose of opium, and subsequently Form. 194, with a little sulphate of magnesia.

The absorption of the blood tumor may be facilitated by iodine in-frictions, and the internal administration of iodide of iron. The menstrual function should be regulated and the circulation relieved, before each catamenial period, by the administration of a brisk hydragogue purgative.

DISPLACEMENTS OF THE UTERUS.

The unimpregnated uterus is liable to downward, backward, and forward displacements, known respectively as *prolapsus*, *retroversion*, and *anteversion*.

PROLAPSUS may be *partial*; or *complete*, when the womb protrudes entirely out of the vagina.

Symptoms.—A sense of bearing down; dragging pain in the loins; leucorrhœa. If the uterus be displaced suddenly, acute pain, fainting, and hæmorrhage.

Diagnosis.—From protruded pedunculated tumor, by the arrest of the uterine sound when passed aside of the tumor into the vagina. The finger or sound cannot be introduced beyond the prolapsed uterus, because the vagina is pushed down with it and inverted. The prolapsed uterus forms a pear-shaped tumor, the small end being directed downwards and presenting the orifice of the cervix. These characters distinguish it from the inverted uterus.

Causes.—Leaving bed too soon after parturition; debility and leucorrhœa; severe chronic cough; straining; injuries to the perineum.

Treatment.—Tonics, astringent injections, and sponge pessaries, are usually sufficient for the relief of partial prolapse; a T bandage and suitable pessaries are needed in addition, when the prolapse is complete.

RETROVERSION.—I. When the womb is completely displaced, the fundus is directed backwards against the rectum, and the os forwards towards the symphysis, and the organ lies horizontally across the pelvis. II. The position of the os and cervix may not be greatly altered, while the fundus is bent downwards and backwards at the upper part of the cervix, so as to descend as low as the os and lie in the recto-uterine pouch; this condition is known as *retroflexion*.

Symptoms.—Sacral pain, aggravated at the menstrual periods, sense of dragging in the groins and down the inside of the thighs, irritability of the bladder; dysmenorrhœa; menorrhagia. The os uteri is swollen, congested, low down, and directed more or less forwards; behind it a firm round tumor can be felt through the posterior wall of the vagina, filling up the hollow of the sacrum and pressing on the rectum. On tracing the cervix upwards from the posterior lip, the finger comes upon the angle formed by the body and neck of the uterus. The uterine sound passes but a short way if its curve be directed forwards, but on rotating the handle, the instrument readily passes into the uterine cavity, and its point can be felt, by the finger in the rectum, occupying the interior of the retroflexed fundus.

Causes.—*Predisposing.* Abortion, constipation, retention of urine, laxity of the uterus, and of the round and broad ligaments.—*Exciting.* Straining; a false step.

Treatment.—Replacement with the uterine sound, after which the patient should lie in the prone position for some hours daily, for a time; astringent injections; the bowels to be kept free, and all straining avoided.

ANTEVERSION may occur as a *malformation*; but as a *displacement*

in an unenlarged uterus it is anatomically impossible, so long as the bladder is properly formed, and rightly placed.

OOPHORITIS.—INFLAMMATION OF THE OVARY.

SYMPTOMS.—A dull, sickening, deep-seated pain in the groin, with tenderness of the iliac region. So long as the inflammation is confined to the ovary the pain is local, but frequently it involves the contiguous peritoneum, and becomes diffused over the lower part of the abdomen, which is swollen and tender; the pain becomes more severe, and radiates down the inside of the thigh, being increased by extension of the leg; nausea and vomiting come on, and the symptoms much resemble simple peritonitis; but on manipulation we have no difficulty in tracing the pain to its source deep in one or other of the iliac fossæ. The os and cervix uteri are usually very painful to the touch, owing to the transmission of the pressure in the inflamed ovary. On passing the finger alongside the cervix, the exquisitely tender ovary may be felt through the wall of the vagina, lying in the direction of the sacro-iliac articulation. Whether we feel the ovary or not, pressure in this direction causes intolerable sickening pain.

CAUSE.—Suppression of the menses, from exposure to cold.

TREATMENT.—A full dose of opium; leeches, applied to the groins, anus, or, still better, to the upper part of the vagina on the painful side; a hot hip bath and a brisk purgative; hot fomentations to the abdomen. If there be signs of peritoneal inflammation, calomel and opium must be administered, so as slightly to affect the gums. If the menstrual flow can be re-established, the patient will probably do well. If the acute inflammation be neglected or improperly treated, the disease becomes chronic, and ovarian dysmenorrhœa, or cystic disease of the ovaries, will result.

OVARIAN TUMORS AND DROPSY.

Ovarian tumors are almost invariably cystic growths.

From the nature of the changes which attend the development and discharge of the ovum, no other organ is so liable to cystic degeneration as the ovary. All the elements of this morbid process are present at every menstrual period.

The following varieties of ovarian tumor are found to occur:—

The *simple cystic tumor*.—The ovary being distended into a single cyst containing several gallons of fluid, which is usually a clear watery serum, but, in some cases, a thick brown grumous fluid, which, when heated, becomes solid.

2. *Compound ovarian cysts*.—In these the proportion of solid and fluid constituents varies; sometimes the cysts are very large, and repa-

rated by thin partitions; sometimes small, and surrounded by thick walls of firm fibrous or vascular tissue (*Cystosarcoma*.)

3. *Alveolar or colloid tumor*.—In this form the enlarged ovary is developed into innumerable minute cells, not exceeding an inch in diameter, filled with a glutinous jelly-like material.

4. *Cysts containing developed tegumentary organs*—teeth and hair.

SYMPTOMS.—At first obscure, so as to attract little or no notice. Suppression or irregularity of the menses, is one of the earliest symptoms; pain, referred to the side where the disease begins, is present in one-third of the cases; retention of urine, or difficult micturition, in about one-ninth; in one-third of the cases the tumor is discovered unexpectedly. (West.) It is always at first seated on one side. When it has attained such a size as to attract the patient's notice, there is pain or numbness extending down the corresponding leg; and when the left ovary is affected, the passage of feces may be hindered. Usually there is more or less complete suppression of the catamenia.

As the tumor grows it distends the abdomen equally, and may then be mistaken (if mostly solid) for the pregnant uterus; a fibrous tumor of that organ; cystic disease of the kidney (see p. 191); or, if it be fluctuant, for ascites.

OVARIAN DROPSY.

The first two varieties of ovarian tumor (the monocystic and the polycystic) are those that give rise to ovarian dropsy. A distinction can generally be made by the extent of the fluctuation. In the case of the single cyst, a tap on one side of the belly produces distinct fluctuation on the other. When the cyst is compound, the partitions interrupt the fluctuation generated in any one cyst, and it can be only felt within its own limits. In either variety the most protuberant parts of the abdomen are dull on percussion, while the sides are more or less resonant. The belly does not swag to the sides when the patient lies in this position; the upward development of the tumor causes great divergence of the false ribs, and if the fingers be insinuated between their margin and the tumor, its tense rounded outline may be felt.

DIAGNOSIS OF OVARIAN DROPSY.—From the *pregnant uterus*, by the absence of foetal sounds and movements, and by the unaltered state of the uterus. From *ascites*, by the history of the case, which shows that the tumor commenced in the side; in ascites the tumid abdomen sways from side to side according to the position of the patient; and its most prominent parts are resonant from air in the floating intestines, the pelvic viscera are pushed down, and the uterus is low: and some cause of ascites, such as an enlarged nodular liver, may also be discovered. In ovarian disease, the tumor rises out of the pelvis, and drags the uterus a little way with it.

The *distended bladder* has been mistaken for ovarian dropsy. As it

forms a symmetrical pyriform tumor, this can only occur through gross carelessness; but there is some excuse for mistaking for it an asymmetrical multilocular bladder. I have myself seen half a pint of urine drawn, by the trocar and canula, through the abdominal walls, from a distended bladder of this description.

TREATMENT.—If the tumor come under treatment early, increases, and is movable, it should be extirpated forthwith. From the results of the operation of spaying in quadrupeds we infer how safely the removal may be effected in the early stages of the disease. When the tumor has attained a great size, removal should not be attempted if, from manipulation and the history of previous attacks of pain and pyrexia, we infer that the tumor is adherent. In such cases, if the tumor be fluid we must resort to tapping as often as the pressure of the tumor interferes with the respiratory or digestive functions. Excision of a portion of the cyst wall, and the injection of solutions of iodine have been successfully employed to procure inflammatory adhesion of the cyst walls and obliteration of the cyst in those cases in which the tumor cannot safely be removed.

With a view of arresting the growth of the tumor we must seek to improve the health of the patient by astringent tonics.

GONORRHOEA.

DEFINITION.—A specific inflammation of the genito-urinary mucous membrane from impure sexual connection.

SYMPTOMS.—In men, about seven days after contagion, a tickling sensation at the orifice of the urethra and scalding pain along the passage in micturition; the orifice is red and swollen, and in the course of a few hours a thin discharge, quickly becoming thick, puriform, and of a yellowish-white color, appears. The passage becomes much swollen, and the stream of urine is diminished. Painful erections occur, and occasionally a little bleeding takes place after micturition. The prepuce is usually much inflamed and swollen, giving rise to phymosis or paraphymosis. If the body of the penis be implicated in the swelling, painful curving of the organ (chordee) takes place during erection. In severe cases the inflammation extends backwards, to the seminal ducts, and thence along the vas deferens to the testicle, or to the bladder, producing severe inflammation of these parts. When orchitis supervenes, the puriform secretion is altogether suppressed. When suppression occurs, febrile symptoms set in, often attended by severe ophthalmia or swelling of the joints (gonorrhœal rheumatism).

In women the inflammation is usually confined to the vagina, and unless the urethra is implicated, little pain or inconvenience is experienced. When it extends to the uterus, symptoms of severe metritis (p. 212) appear.

DIAGNOSIS.—From simple urethritis and vaginal leucorrhœa, by the violence of the inflammation. Donné considers the presence of the ciliated animalcule, the *trichomonas vaginalis* (Fig. 86), to be diagnostic of the specific vaginal inflammation; but it is formed with other morbid conditions of the vaginal mucus.

TREATMENT.—In mild cases the administration of saline purgatives; and injections of warm water, followed by a mild lead or zinc injection. If the discharge do not cease after the pain and inflammatory symptoms have disappeared, copaiba or cubebs are required.

If there be much swelling and chordee, hot fomentations and the use of lint soaked in the Linimentum belladonnæ; to prevent the latter condition, a grain of opium with camphor may be given.

In many cases the discharge degenerates into a colorless glairy secre-



Fig. 86.

tion, very difficult to remove, known as *gleet*; due to a congested and relaxed condition of the mucous membrane of the urethra. In such cases cubebs, copaiba, and cantharides are often efficacious.

SYPHILIS.

DEFINITION.—A specific disease, arising from contact with a specific animal poison.

SYMPTOMS.—After a period of incubation, varying from three to five days, the appearance of a pimple, pustule, crack, or abrasion on the skin or mucous membrane of the genital organs. In the male the glans or the under surface of the prepuce, and in the female the inner surface of the labia, are the parts usually affected. The pimple enlarges, and the base becomes red; usually the summit softens down into a thin purulent fluid; the cuticle gives way, and a minute excavated sore, without granulations, is formed. The sore now enlarges, and in two or three days attains the size of a pea; it is perfectly circular, deeply and smoothly concave, and covered with a smooth ashy layer, of sloughy tissue, and limited by a smooth, round, narrow, red ring, barely or not at all elevated above the surrounding surface. As the ulcer grows, the red edge becomes broader and is raised, and the surrounding tissue is indurated; minute raw or pale granulations, partly covered with ashy *débris*, spring from the bottom of the ulcer and yield a little ichorous, watery, or thin purulent discharge. This is the *soft chancre*. In a certain proportion of cases the induration and elevation increase, and a well marked "Hunterian"

chancre is thus formed. Cracks and abrasions, if left to themselves, tend to the same condition. In some cases the pimple never becomes pustular, but undergoing enlargement and induration, passes into a characteristic red tubercle.

After a variable interval, secondary symptoms occur, showing that the virus has been absorbed. The earliest and most constant of these is bubo. One or more glands in the groin become enlarged, hard and tender. At first they are not inflamed, their surface is smooth, and they readily move under the finger. They may remain in this condition for months; but usually inflammation, acute or chronic, supervenes. The gland enlarges, and, the surrounding areolar tissue being implicated, loses its mobility. If the inflammation be acute, the integument becomes tense and red, and sooner or later there is fluctuation.

Among the earliest and most common of the secondary symptoms, is ulceration of the membrane of the soft palate and mouth. The ulcers are usually superficial, and appear as mere abrasions surrounded by slightly elevated rounded smooth margins, about which the epithelium has an opaque appearance. They occur on the inner surfaces of the lips, at the angles of the mouth, on the sides of the tongue, but chiefly on the arches of the soft palate and surfaces of the tonsils. In this last situation they are apt to become excavated and ragged. Frequently the mucous membrane and submucous tissue of the larynx is similarly affected, and the voice becomes gruff and husky.

This condition of the mucous membrane is almost always associated with one or more of the following forms of cutaneous disease.

Syphilitic roseola.—After slight constitutional disorder, with headache, and frequently tenderness of the scalp, the trunk, limbs, and face become mottled with light mulberry-colored blotches, not elevated, and disappearing on pressure. The epidermis is unaffected, and the spots are distinct, and shade off into an indistinctly circular margin. This rash is slow in disappearing. It is, doubtless, the first stage of the leprous affection. Its appearance is usually followed by rapid shedding of the hair, sometimes leaving the scalp almost bald.

S. impetigo.—The favorite seat of this eruption is the scalp. It is preceded by pain and tenderness, and commences as distinct red circular spots, which become slightly raised; a muco-purulent exudation next takes place beneath the epidermis, and the spots are subsequently covered with greenish scales. If these be removed, a little depressed, irritable sore is exposed, on which the scab reforms again and again. Ultimately they heal and leave minute scars. The eruption often appears on the face and other parts of the body.—*S. ecthyma* and *rupia* are but increased developments of this form in debilitated constitutions.

S. lepra appears first as roseola. The injected derm subsequently becomes thickened and elevated into a round copper-colored "*S. tubercle*," or, if less elevated, a slightly tumid base, on which the epidermal cells

become dry and silvery, constituting *S. lepra* and *psoriasis*. Occasionally the rash is much congested, and shows a tendency to ulcerate. When this occurs we have either *S. tubercle*, *lupus*, or a characteristic *serpiginous ulceration*.

S. lichen.—Small, hard, conical, copper-colored elevations, formed of the hypertrophied papillæ of the skin, appearing over all parts of the body, and being often intensely irritable. Usually they remain dry, and covered with scaly epidermis; but in persons of feeble constitution they suppurate, and may then be described as

S. varioloid eruption.—The lichenous rash may have existed for weeks, or have preceded the pustular eruption but a short time. The papules exhibit first a little milky serum; but in about a week they are converted into pointed, thick-set but discrete pustules, resting on an inflamed, slightly raised, bright rose or copper-colored base. They appear earliest, and in greatest numbers, on the face; later and more thinly scattered on the trunk. A fortnight or three weeks may elapse before the whole of the pustules on the body mature. The subsequent history of the pustule is much the same as that of variola; but the processes of squamation, desquamation, and the absorption of the inflammatory products around the bases occupy a much longer. Minute cicatrices, stained for a long time with a dusky brown color, remain. When the eruption is extensive and well-marked, the patient presents the appearance of one covered with small-pox; but on closer examination, the small size of the pustules offers a ready distinction.

S. tubercle.—Indolent fiery-red, or coppery, flat tubercles, from a mere pimple to a nut in size, occupying the face, nape, and shoulders. The nose and forehead are perhaps the commonest situations. The tubercles are liable to ulcerate and form, in debilitated subjects, ill-conditioned ulcers, surrounded by dusky red areolæ. The tubercles may persist for a long time and ultimately degenerate into lupus, and invade and destroy the parts on which they are formed.

Such is the relationship which careful observation leads me to establish between the principal syphilitic skin diseases.

But the skin and mucous membranes are not the only structures affected by the syphilitic virus. The serous and fibrous tissues may be involved. The iris, retina, dura mater, and periosteum, and, worse than all, the blood-vessels are each and all, at a later period, liable to be affected. The resulting iritis, retinitis, epileptic convulsions, periostitis, and cerebral symptoms, are usually classed as tertiary symptoms. The periostitis, if chronic, results in severe neuralgic pains, and nodes; if acute, it ends in necrosis. The same poison induces similar morbid processes in the viscera. (See Diseases of the Liver.)

Syphilitic inflammation in or around the blood-vessels of the brain and spinal cord, produce every variety of nerve affection. Severe neuralgia, epilepsy, cerebral hæmorrhage with hemiplegia, mental aberration,

muscular paresis, local paralysis—the third and seventh nerve being especially liable to suffer—and paraplegia.

If personal cleanliness be neglected, and the discharges from the primary sores be allowed to excoriate the contiguous parts, condylomatous growths result. It is not uncommon in young females, ignorant at first of the nature of the disease, and when informed, ashamed to apply for advice, to find the vulva, perineum, and margin of the anus covered with condylomatous growths, and the labia and clitoris themselves converted into large misshapen pendulous masses, exuding an offensive ichorous fluid. Warts, and probably elephantiasis, have the same origin.

PATHOLOGY.—The syphilitic poison, when introduced into the blood, causes a low sluggish form of adhesive inflammation, accompanied by the effusion of solid unorganized matter. Unlike the solid products of common inflammation, this material seems little susceptible of absorption or of conversion into fibrous tissue. Like tubercular matter, its tendency is to break down and to produce unhealthy ulceration.

CONTAGION.—A person may become infected with syphilis in three ways:—1. By *absorption*. 2. By *inoculation of the discharge* from a chancre. 3. By *inoculation of the blood* of a person in whom secondary symptoms are present. The disease is commonly propagated by the first mode, the poison being absorbed during sexual intercourse through the delicate cuticle into the capillaries of the mucous membrane; and more readily if the cuticle be abraded.

With regard to inoculation M. Ricord has shown that if matter from a chancre be taken on the point of a lancet and introduced into the skin of a person *free from constitutional syphilis*, a similar infecting chancre is produced there. The following is a description of its development. During the first twenty-four hours, a little redness round the puncture; second to third day, a papular elevation seated on an inflamed areola or base; fourth day, a vesicle due to the effusion of turbid fluid beneath the cuticle covering the papule; fifth day, the effusion increases and becomes more or less purulent; the centre of the pustule is depressed, and the areola redder and swollen; sixth day, the tissue surrounding the base of the pustule hardens and feels elastic like fibro-cartilage. Subsequently the swelling, induration, and effusion increase, the cuticle gives way, a scab forms, and when this is detached the indurated chancre above described presents itself. If, however, the syphilitic virus have been previously absorbed into, *and be actually present* in the blood of an individual, inoculation of matter from an infecting sore on his own person, or on that of another, produces no effect. This non-production of a chancre around the point of inoculation is accepted as proof that the syphilitic poison already pervades the constitution. It would appear that the constitution is infected on or about the fifth or sixth day of the development of a primary chancre, that is, at the time when the specific induration appears. If, then, the individual be inoculated before the

fifth day with syphilitic matter from his own developing chancre, or from any other source, an infecting chancre will be produced around the point.

As to the third mode of propagation, it has been proved that inoculation with the blood of a person affected with secondary syphilis will produce an infecting chancre. The disease has been transmitted in this manner by vaccination, and the blood of a child suffering from secondary syphilis having mingled with the vaccine matter derived from it, imperfectly developed vaccine vesicles have resulted, and passed into the condition of indurated chancres—a result the more remarkable since the infecting child itself never had the primary disease.

Hereditary transmission of syphilis.—Just as the *fœtus in utero* participates in small-pox affecting the mother, so may it be with syphilis. Hundreds of sickly infants attest this painful fact. Several good observers consider it to be well-established that the infection of the infant may take place independently of the existence of a chancre or syphilitic bubo in the mother during gestation.

ORIGIN.—Some authors are of opinion that syphilis has its origin in some very remote age, and that it has been transmitted by successive contact with infected persons to the present generation. When it has been proved that certain conditions, or combinations of circumstances, happened in remote ages, which are never repeated now, we may accept this hypothesis. At present it is more philosophical, and more in accordance with what we know of the origin of other contagious diseases, to assume that the virus is every day generated anew.

DIAGNOSIS.—The primary sore may be known by the ashy excavation or pale warty granulations of the surface, and by the elevated, rounded, circumscribed induration which borders and surrounds it.

TREATMENT.—I. *Local.* Before the end of the fifth day, the primary sore admits of arrest and cure by the application of nitrate of silver, strong nitric acid, or caustic potash. When the slough has separated, the ulcer may be dressed with black wash or calomel ointment. If the disease come under notice after induration, local treatment will be of no service. The sore must be kept clean and free from irritation, and constitutional treatment adopted.

II. *Constitutional.*—This consists in the exhibition of mercury in the form of calomel or pilula hydrargyri in small and repeated doses, combined, if bubo be present, with the infriktion of mercurial ointment into the groins until the gums become red, slightly swollen, and tender. No disease has a remedy more efficacious than syphilis has in mercury, and if the patient be carefully watched, even stomatitis need not result from its use. Under its influence, the hard effused products melt away, the bubo disappears, the ulcer assumes a healthy aspect and heals. When the constitutional effects have been thus induced, they should be kept up for a time by the occasional use of a little mercurial ointment.

When it is desirable to affect the system speedily, gr. xv. to gr. xxx. of

calomel should be sublimed and the vapor retained in contact with the person by means of a blanket.

If the primary disease have been treated by mercury, secondary and tertiary symptoms, such as the cutaneous and periosteal affections and ulceration of the larynx, very readily yield to iodide of potassium, given in doses of from gr. iii. to gr. xxx. thrice a day. If mercury have not been used in the treatment of the primary disease, it must be given in combination with iodine. Gr. i. to gr. iii. hydrargyri iodidi viridis, or gr. $\frac{1}{4}$ to gr. $\frac{1}{4}$ hydrargyri iodidi rubri may be given in the form of pills thrice a day; or the latter may be combined with an excess of iodide of potassium in solution of which it is soluble, and thus given in the form of mixture.

Two other forms of syphilis remain to be described—viz. Infantile Syphilis and Local Syphilis.

INFANTILE SYPHILIS.—The child may be born apparently healthy. The first symptom which usually appears is inflammation of the nasal passages, resulting in a muco-purulent discharge, causing obstructed nasal breathing. This is popularly known as the *snuffles*, and the child is supposed to have a cold. It now becomes pallid and fretful, and rapidly emaciates. After about a fortnight an eruption of copper-colored blotches appears round the anus, the adjacent part of the buttocks, and lower extremities, and after a time on other parts, particularly about the folds of the neck and joints. The eruption consists of circular spots slightly raised and subsequently covered with thin dryish cuticle (*S. lepra*), and on the folds of the groin, and about the perineum it is apt to become moist and excoriated, leading, perhaps, to the formation of condylomata. As the disease progresses, the intervening skin usually becomes copper-colored, superficial ulcers appear on the inside of the mouth, the infant presents an extremely cachectic and emaciated appearance, and, if the specific remedy be not applied, soon dies of asthenia.

Treatment.—Gr. i. to gr. ii. hydrargyri cum cretâ twice or thrice a day, continued until the snuffles and rash have disappeared, and for two or three weeks afterwards.

LOCAL SYPHILIS.—Mr. Henry Lee recognizes four forms of primary syphilis: viz. 1st, The indurated chancre. 2d, The suppurating sore. 3d, Ulcerative syphilitic inflammation. 4th, Destructive syphilitic inflammation.

The first two forms are those which have been already described as producing constitutional syphilis. Some deny that the soft chancre can produce secondary symptoms, but this does not accord with my experience. The other two forms are purely local, and, as such, never give rise to secondary symptoms, but they require specific constitutional treatment. The secretion of each of these three latter forms may be artificially inoculated.

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SPERMATORRHOEA.

SYMPTOMS.—Involuntary seminal discharges, occurring either during sleep, or in the day-time, and, in extreme cases, on the slightest friction or irritation of the genital organs. The constitutional symptoms are out of proportion to the loss of fluid sustained, and are due in part to the intimate relation subsisting between the sexual function and nervous system. They are those of *Mimosis Inquieta* (Vol. I., p. 246), and *Hypochondriasis* (p. 61). The patient is restless, listless, timid, and desponding. He is subject to flushings of the face, headache, giddiness, noises in the ears, disordered vision, dilated pupil, and other symptoms of cerebral congestion, to palpitation and shortness of breath. He is easily startled by noises and readily irritated, and has various nervous feelings, as of cold water trickling down the back, or of ants crawling over the skin; or weakness and numbness of the hands. The memory fails, and the intellect grows weak; the patient hesitates, and often stammers. In the most severe cases, his mind is still more seriously affected. His spirits are depressed; he is addicted to silence and solitude; is timid and morose; believes himself to be the object of plots and persecutions; grows weary of life, and is tempted to commit suicide; and, at length becomes the confirmed victim of monomania or dementia. In some cases the state of mind may be fitly described as one of intolerable discomfort or *malaise*. Such a condition of mind existed in a young man who had been successful at school and college, possessed an intellect of rare clearness, was free from any ascertainable illusion or delusion, but referred with great relief to habits of self-abuse commenced early and abandoned at the age of twelve. After attempting suicide three times on one day, being placed in an asylum and discharged as cured, he succeeded in destroying himself within a day or two of his release. (G.) Among the occasional symptoms and consequences of this affection are impotence, rigid contraction of the limbs, chorea, epilepsy, strabismus, amaurosis, bulimia, and nervous asthma.

CAUSES.—Sexual excesses; masturbation, pruritus scroti, ascarides, hæmorrhoides, fissures of the anus, and stricture of the rectum; blisters and cantharides taken internally; sleeping on the face.

DIAGNOSIS.—The fluid is identified as coming from the *vesiculæ seminales* by the physical and microscopical characters of the semen (see Fig. 32, Vol. I., p. 128). In one case which came under my notice, the patient mistook an abundant pale sediment of urate of ammonia (Fig. 21, Vol. I., p. 121), completely dissolved by heat, for semen. (G.) The urine alleged to contain semen should always be submitted to examination.

PROGNOSIS.—*Favorable* in those cases in which the discharge is nocturnal, and always preceded and accompanied by the usual sexual phenomena. Less favorable in those cases in which the discharge is diurnal, and produced by slight causes. Most favorable when traceable to irritation in the rectum, urethra, or scrotum.

TREATMENT.—The patient often requires comfort more than medicine. As a general rule, cases in which the emissions are nocturnal, and accompanied by the usual sexual phenomena, admit of cure by abstinence from any bad habits which may have caused them. In all cases aperients regularly administered, to secure a free state of the bowels, are required (aloetic aperients and hypercatharsis are contra-indicated). If nervous symptoms predominate, the treatment prescribed under *Mimosis Inquieta*; if the patient be pale and anæmic the treatment proper to *Anæmia*. If ascarides be present, the remedies for the removal of the same. Piles require the treatment recommended at p. 161. If cutaneous eruptions near the parts of generation be the cause of irritation, these will have to be treated according to their form and character. The careful avoidance by patients suffering from this disease, of advertising quacks cannot be too strongly insisted upon.

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CHAPTER VII.

DISEASES OF THE EYE AND EAR.

DISEASES OF THE EYE.

1. CONJUNCTIVITIS.
 2. SCLEROTITIS.
 3. CORNEITIS.
 4. IRITIS.
 5. DISEASES OF THE CHOROID.
 6. DISEASES OF THE RETINA.
 7. DISEASES OF THE CHOROID AND RETINA.
 8. DISEASES OF THE LENS.
 9. STAPHYLOMA POSTICUM.
 10. GLAUCOMA.
 11. OTHER DISEASES AND DEFECTS OF THE EYE.
-

INFLAMMATION OF THE CONJUNCTIVA.

VARIETIES.—1. Catarrhal Ophthalmia. 2. Purulent Ophthalmia of Infants. 3. Purulent Ophthalmia of Adults. 4. Gonorrhœal Ophthalmia. 5. Strumous Ophthalmia.

1. CATARRHAL OPHTHALMIA.

SYMPTOMS.—Redness and itching of the conjunctiva, lachrymation, slight intolerance of light, and stiffness of the globe of the eye, followed by pricking pain, the sensation of a grain of sand beneath the eyelid, and adhesion of the eyelashes, on first waking in the morning. The inflammation begins in the conjunctiva of the lids, and gradually extends towards the cornea. In the acute form, the whole eye except the cornea is covered with a vascular network, the secretion becomes puriform or muco-purulent, and patches of blood are sometimes effused beneath the conjunctiva. If the disease extend to the cornea, vision is obscured. There is no constitutional disturbance, beyond the slight feverishness attendant on the catarrh.

CAUSES.—Catarrh; a draught of cold air directed on the eye; foreign bodies in the eye; over-exertion of the sight; the glare of a strong light; all the causes of inflammation in other mucous membranes.

DIAGNOSIS.—From *purulent ophthalmia*, except in severe cases, by its milder character, and by not being contagious. From *inflammation of the sclerotic*, by the brighter color, larger size, and tortuosity of the vessels, which are obviously superficial, and shift their place with the motions of the lids; by the abundant secretion; by the absence of acute pain in and around the orbit; and by the slight intolerance of light, existing chiefly at the onset of the attack.

PROGNOSIS.—*Favorable*. The disease readily yields to treatment, and when confined to the conjunctiva, does not threaten the loss of vision. In chronic cases, or after repeated attacks, the lids may become thickened, and that part of the membrane which covers the cornea may be rendered opaque, so as to impair the sight.

TREATMENT.—That of catarrh. Dover's powder may be given at night, with a saline aperient in the morning; or small doses of tartar-emetic, in combination with a saline aperient, two or three times a day.

Local treatment. In severe cases, the application of a blister, or a few leeches to the temple, with fomentations of warm water or warm decoction of poppies. When the inflammation has in some degree subsided, and in mild cases from the first, collyria (Form. 33) will be needed; a large drop or two being placed between the lids at the outer angle twice or thrice a day. Adhesion of the eyelids must be prevented by spermaceti or zinc ointment placed between them at bedtime.

2. PURULENT OPHTHALMIA OF CHILDREN.

SYMPTOMS.—Inflammation in the conjunctiva covering the lids, commencing generally on the third day after birth, and extending over the entire surface of the eye, accompanied by intolerance of light, swelling and firm adhesion of the lids, and a copious discharge of purulent matter, which issues in large quantities on their separation. The membrane is of a bright crimson color. The discharge is generally yellow, but sometimes greenish; or tinged with blood; or ichorous. The disease may continue for eight or ten days, without involving the transparent parts of the eye; but if it be not properly treated, ulceration occurs at the circumference of the cornea, which first becomes hazy, then opaque, and finally sloughy and infiltrated with pus. Sooner or later it gives way, and the iris protrudes. If the inflammation of the cornea stop short of ulceration it becomes opaque and usually adherent to the iris.

The constitutional symptoms are restlessness, sleeplessness, and disordered bowels—results of the prolonged local irritation.

DIAGNOSIS.—There is no other disease of the eyes occurring at this early period with which it can be confounded.

PROGNOSIS.—*Favorable*, so long as the cornea retains its transparency.

CAUSES.—The application of leucorrhœal or gonorrhœal discharges to the eye, during parturition; contagion.

TREATMENT.—Few diseases require more assiduous attention, and few so rapidly yield to treatment; neglect for a single day may result in loss of vision. Six times a day the lids must be carefully separated, and the surface of the conjunctivæ freely syringed with warm water and one or two drops of solution of nitrate of silver (gr. ii. to gr. iv. to $\frac{3}{4}$ i.), or of alum (gr. x. to $\frac{3}{4}$ i.) dropped into the eye just within the outer canthus. The lids should then be smeared with a little olive oil; and lint wetted with water be kept constantly applied to them. In chronic cases, when the lids present a granular appearance, they may be touched with the solid nitrate of silver or sulphate of copper.

The bowels should be kept free by gentle aperients of castor oil, magnesia, or manna.

PROPHYLAXIS.—The greatest care should be taken to prevent the application of the matter to the eyes of other persons.

3. PURULENT OPHTHALMIA OF ADULTS.

SYNONYM.—*Ægyptian ophthalmia*.

SYMPTOMS.—The disease generally attacks both eyes, and sets in with the sensation of a foreign body beneath the eyelids, speedily followed by injection of the conjunctiva, effusion of serum beneath it, and a thick puriform discharge. The conjunctiva is of a bright red color, the lids and anterior surface of the eye are swollen and granular, and the cornea is sunk, as it were, into a deep pit formed by the projecting conjunctiva. There is, here and there, extravasated blood. So long as the conjunctiva alone suffers, the pain is inconsiderable; but when the deep-seated textures are involved, it is extremely severe. In the globe itself, it is a sensation of painful tension, and around the orbit, a pain like that of hemi-crania. It is intermittent, or aggravated at intervals, and attains its greatest intensity at night, the sleep being disturbed by paroxysms of pain. There is little intolerance of light in any form of the disease. Rupture of the cornea sometimes takes place with permanent or temporary relief to the pain. The constitutional symptoms are slight.

TERMINATIONS.—In resolution; chronic inflammation; granular conjunctiva; opacity, ulceration, or sloughing of the cornea; staphyloma; prolapsus of the iris. The disease is very apt to recur.

CAUSES.—Contagion. The common causes of inflammation.

DIAGNOSIS.—From *catarrhal ophthalmia* by its greater severity, and greater tendency to attack the deeper seated parts. From diseases of the deeper seated tissues alone, by the severe inflammation of the conjunctiva.

PROGNOSIS.—*Unfavorable*, when very severe, or neglected at its out-

set. From its tendency to attack the deeper seated structures of the eye, loss of vision, or at least injury to the sight, may be anticipated.

TREATMENT.—Leeches round the orbit, or blisters to the temples. Strong astringents (Form. 163). In chronic cases, the *vinum opii*. Previous to the application the surface of the eye should be carefully cleansed by a syringe. Aperients should be administered at the outset; the patient should be put on a spare diet, and enjoined to take gentle exercise in the open air. When the deeper seated textures of the eye are implicated, the remedies appropriate to the inflammation of those textures should be employed; such as the belladonna ointment in threatened adhesion of the iris; puncturing the cornea to prevent rupture of the membrane; the application of nitrate of silver to ulcers on the cornea, or the protruding iris.

PROPHYLAXIS.—Great care should be taken to prevent the application of the matter to the eyes of healthy persons.

4. GONORRŔEHAL OPHTHALMIA.

SYMPTOMS AND TREATMENT.—Those of purulent ophthalmia of adults; but more severe and much more rapid: a few hours may suffice for its complete development. In order to arrest it, we may pass solid nitrate of silver rapidly over the inflamed conjunctiva.

CAUSE.—Inoculation of the eye with gonorrhœal matter.

5. STRUMOUS OPHTHALMIA.

SYNONYMS.—Scrofulous, pustular, and phlyctenular ophthalmia.

SYMPTOMS.—This disease attacks children from the period of weaning to eight or nine years of age, and sometimes up to puberty. There is slight and partial redness of one, or of both eyes, sometimes confined to the eyelids, and caused by groups of enlarged vessels running from the circumference of the eye to the edge of the cornea, where they terminate in small pustules, which break and form minute ulcers. Sometimes the injection extends to the conjunctiva covering the cornea, and pustules form on its surface. There is great intolerance of light, the eyebrows are contracted, and the nostrils and upper lip drawn upwards. Whenever the eye is exposed to light, there is a profuse discharge of scalding tears, which, flowing over the skin, irritate and inflame it. The symptoms remit towards evening. The constitutional symptoms are those of scrofula, such as glandular enlargements, eruptions on the head and face, sore ears, general debility, tumid belly, disordered bowels, offensive breath.

CAUSES.—*Predisposing.* The scrofulous diathesis, and all the conditions which are known to excite it.—*Exciting.* The common causes of inflammation; catarrhal ophthalmia; the exanthemata.

DIAGNOSIS.—From catarrhal ophthalmia, by the more partial injection of the vessels, the greater intolerance of light, the formation of dis-

tinct pustules, and the presence of other symptoms of scrofula. From purulent ophthalmia, by the profuse watery discharge.

PROGNOSIS.—*Favorable*, when the scrofulous taint is slight.—*Unfavorable*, when it is strongly marked.

TERMINATIONS.—In resolution; in the formation of a “vascular speck,” or of *pannus*; in ulceration of the cornea; followed in some cases by protrusion of the iris, and its adhesion to the cornea; in infiltration of the cornea.

TREATMENT.—I. *General*. That recommended for scrofula (Vol. I., p. 324). Quinine is a most valuable tonic in this disease. II. *Local*. Warm fomentations to the eye; the instillation of vinum opii with $\frac{1}{2}$ part of liq. atropiæ, two or three times a day, or the use of astringent collyria; a little red precipitate or citrine ointment, placed between the lids at bedtime; and by counter-irritation—blisters behind the ears, an issue in the arm, or a ring or thread passed through the lobe of the ear. Ulcers on the cornea should be touched with nitrate of silver. When there is much spasm of the orbicularis oculi, conium in efficient doses is extremely useful.

SCLEROTITIS.—INFLAMMATION OF THE SCLEROTIC.

SYNONYM.—Rheumatic ophthalmia.

This disease is sometimes limited to the sclerotic, but more frequently co-exists with inflammation of the conjunctiva (*catarrho-rheumatic ophthalmia*), or of the iris. (See Specific Iritis.)

SYMPTOMS.—A deep seated and dusky redness of the globe of the eye, especially round the cornea, where the fine radiating straight vessels of the sclerotic are seen abruptly terminating a short distance from its margin. There is an abundant flow of tears, extreme photophobia, and a sensation of fulness and tension, with darting pain in the globe, extending round the orbit, in the course of the branches of the fifth nerve, increasing towards evening, attaining its greatest intensity at midnight, and subsiding towards morning. There is generally some degree of haziness of the cornea, and vision is more or less impaired.

TERMINATION.—In recovery, or in chronic disease. If the disease extend to the cornea or iris, the results of inflammation of those parts.

CAUSES.—*Predisposing*. Middle age; the male sex; a previous attack; the rheumatic or gouty diathesis.—*Exciting*. The common causes of inflammation. The disease is simply local rheumatism.

DIAGNOSIS.—From inflammation of the conjunctiva by the deep-seated redness, radiated arrangement, and hair-like fineness of the vessels; by the secretion of tears in the place of mucus; by the deep-seated pain of the orbit, extending to the surrounding parts; by the intolerance of light; in some cases by its complication with iritis.

PROGNOSIS.—*Favorable*, if the disease be promptly treated. It is very liable to assume a chronic form, and to return.

TREATMENT.—That of catarrhal inflammation of the conjunctiva, combined with the remedies proper for rheumatic inflammation of the sclerotic. An alterative purgative followed by a full dose of sodæ et potassæ tartras combined with ℥xv. vini colchici. Quinine with the vegetable acids. Gr. x. pulv. ipecacuanhæ comp. at bed-time. In obstinate cases, arsenic (Form. 292) is sometimes beneficial.

A solution of extract of opium occasionally dropped into the eye, which should be protected by a shade, or the patient remain in a darkened room. Warm opium fomentation. Unguentum belladonnæ should be rubbed into the forehead, and smeared over the eyelid and brow. If the inflammation be very acute, leeches to the temple or behind the ears.

CORNEITIS.—INFLAMMATION OF THE CORNEA.

SYMPTOMS.—The disease begins with irritation of the eye, slight vascularity of the sclerotic, and a soaked appearance of the cornea, the haziness of which increases. One or more minute ulcers now form on the surface, and the vessels of the conjunctiva and sclerotic become injected; those of the conjunctiva ramifying over the surface of the cornea, and those of the sclerotic being arranged in the characteristic radiated form round the margin of the cornea. Depositions of lymph between the layers of the cornea are also of frequent occurrence; and the secretion of the aqueous humor being augmented, the convexity of the membrane is increased. During the progress of the disease pus may form within the layers of the cornea, appearing as a yellowish white spot; the posterior lamina may give way, when the pus is discharged into the anterior chamber and sinks down to the lower part, forming a yellow crescent (*hypopyon*); or the fibres of the anterior elastic lamina may be destroyed and a minute ulcer result. Such ulcers readily heal; but the cicatrix always remains opaque. There is generally considerable lachrymation and intolerance of light. The pain is usually slight, except occasionally in the first stage, when there is a sense of tension in the eye, with darting pains in the forehead.

DIAGNOSIS.—From other chronic affections of the eye, by a plexus of very fine vessels arranged in the form of a crescent at the edge of the cornea. Sometimes these vessels form an almost complete circle.

PROGNOSIS.—*Unfavorable*, when the general health is impaired.

TREATMENT.—That recommended under Scleritis. A solution of nitrate of silver (gr. v.— $\frac{3}{4}$ i.) should be daily dropped into the eye. Quinine is particularly useful in this, as in strumous ophthalmia. Should inflammation of the surrounding textures, and of the iris, take place, the treatment proper to iritis will be necessary.

IRITIS.—INFLAMMATION OF THE IRIS.

VARIETIES.—1. Idiopathic. 2. Specific.

1. IDIOPATHIC IRITIS.

SYMPTOMS.—The disease begins by the formation of a red zone of small, straight, parallel vessels, arranged as radii round the circumference of the cornea, and terminating abruptly near its edge, the redness after a time extending to the conjunctiva. The iris loses its brilliancy, becomes muddy, and of a tint formed by blending a red with its original hue; its texture is at the same time impaired or destroyed, and lymph is largely effused into its substance. The movements of the iris are at first impeded, and then suspended; the pupil contracts, and becomes irregular in shape, from effusion into its substance and adhesion to surrounding parts. There is dimness, and at length complete loss, of vision; and generally severe pain in and round the orbit, darting to the cheek and temple, and worse at night.

DIAGNOSIS.—By the change of color of the iris, the irregular pupil, and the effusion of lymph behind the cornea.

PROGNOSIS.—*Unfavorable*, when the treatment has been delayed. A contracted pupil, great vascularity, acute and deep-seated pain, dimness of vision, or insensibility to light.—*Favorable*, in mild cases, and in acute cases, promptly treated.

CAUSES.—Mechanical injuries, surgical operations, over-exertion of the eyes, and the common causes of inflammation.

TREATMENT.—*Indications*. I. To subdue inflammation. II. To prevent effusion, and promote the absorption of lymph. III. To dilate the pupil and prevent the formation of adhesions.

I. Leeches to the temple, brisk aperients, a strict antiphlogistic regimen, the exclusion of light, and perfect rest.

II. To fulfil this indication, calomel and opium must be given from the outset, in doses of gr. $\frac{1}{2}$ to gr. i., with from a quarter to half a grain of opium, every three, four, or six hours, according to the severity of the symptoms; combined in very severe cases with mercurial inunction. The calomel and opium may be combined with tartar-emetic ($\frac{1}{8}$ to $\frac{1}{4}$ gr.) if there be much general excitement of the circulation.

III. This indication is best fulfilled by occasionally dropping a little liquor atropiæ into the eye.

2. SPECIFIC IRITIS.

VARIETIES.—Syphilitic; Rheumatic or Gouty; Strumous.

1. SYPHILITIC IRITIS.—The *symptoms* resemble those of idiopathic iritis, but generally come on slowly and insidiously. When fully estab-

lished, the disease may prove highly destructive. The *cause*, as the name implies, is the syphilitic virus. The disease may occur alone; or in combination with other secondary symptoms; and it may make its appearance during the primary disorder. The *diagnosis* turns on the position in which the lymph is effused, and on its appearance. It is thrown out on the margin of the iris in the form of globules or distinct masses, of a reddish, brownish, or brownish yellow color, sometimes described as tubercles. At the same time the pupil is displaced upwards and inwards, the sclerotic zone is of a cinnamon color, and small brown spots form on the cornea. The *treatment* consists in inducing the constitutional effects of mercury, as quickly as possible, by means of calomel and opium internally, and the infriktion of mercurial ointment into the armpits or groins. Atropia must be used to dilate the pupil.

2. RHEUMATIC OR GOUTY IRITIS.—The *symptoms* are usually associated with those of scleratitis (see p. 234). The sclerotic, however, has a peculiar purplish hue, and the radiating vessels stop within one or two lines of the margin of the cornea, leaving a bluish white ring around it,—appearances characteristic of this affection. Blood-vessels become visible in the iris. Deposition of fibrin is rare; and when it does occur is small in quantity, and surrounds the pupillary margin.

CAUSE.—Exposure of the eye to a draught of cold air.

TREATMENT.—That of scleratitis (see page 235), care being taken by the use of liquor atropiæ to prevent adhesion of the iris to the capsule of the lens. Mercury is of no use in this form of disease.

3. STRUMOUS IRITIS.—This form generally results from the extension of strumous ophthalmia to the deeper-seated structures, and is chronic and obstinate. The constitutional treatment is that of scrofula; the local treatment being determined by the degree and extent of inflammation. Solution of atropia must be used as in other forms of iritis.

USE OF THE OPHTHALMOSCOPE.

To ascertain the state of the deeper structures of the eye, the ophthalmoscope is indispensable, and a few words on the use of it will not be out of place here.

To explore the whole fundus of the eye, the pupil must be dilated by instilling a few drops of solution of atropia. But as the pupil does not regain its contractility for some time, we must use the solution as seldom as possible, and we may even dispense with it when a glance at the optic nerve and the parts immediately surrounding it is all that is wanted. Let the patient be seated in a dark room, and place an argand gas-light, or moderator lamp, just behind his shoulder and close to the side of his head, so that the light is on a level with the eye, and so far behind it that the face is in the shade. Stand or sit opposite the patient, apply

the ophthalmoscope to your own eye, at a distance of eighteen inches from the eye of the patient, and, looking attentively through the sight-hole, direct the rays from its mirrored surface so as to fall on the patient's eye. Next interpose the lens at a distance of about an inch in front of him, and by a slight backward and forward movement of your own head bearing the speculum, catch the proper focal distance, and the image of the fundus of the eye will appear as a reddish glow. On careful examination the following parts will distinctly appear:—

NORMAL APPEARANCE OF THE FUNDUS OF THE EYE.—Figs. 87 and



Fig. 87.¹

88.—The *entrance of the optic nerve* (optic disc, or papilla) is seen as a white or rosy-tinted circular spot limited by a sharp, well-defined, circular line, formed internally of the margin of the choroid, externally of the margin of the sclerotic. The margin is slightly raised above the general concavity of the fundus, while its central parts are slightly depressed below it. A little to the inside of the optic entrance the *yellow spot* may be seen: it is the darkest part of the fundus, forming a dusky oval or roundish patch, as large as, or smaller than, the optic entrance. In the centre may be distinguished a small bright dot, the *fovea centralis*. The optic entrance and yellow spot are surrounded by an orange-red field, varying in intensity of color according to the complexion, and pervaded by the retinal vessels. The *retinal artery* and *vein*, in obtaining entrance into the eye, perforate the optic entrance, where each consists of from one to three trunks; the artery is distinguished from the vein by its smaller size, its scarlet color, and its dichotomous ramifications. The veins are more tortuous, and receive branches at considerable angles. Leaving the optic entrance, these vessels are seen to ramify freely over the surface of

¹ Fig. 87 represents the parts of natural size, and the retina spread open. The yellow spot, and a little below and to the inner side, the optic nerve entrance and the retinal vessels are seen.

the retina, diverging above and below the yellow spot so as to avoid it, and spreading their fine terminal branches towards the anterior edge.

The different parts of the fundus are successively brought into view as the patient moves his eyes outwards or inwards, downwards or upwards. The yellow spot, being in the axis of the eye, will be seen when it is directed straight forward; the optic entrance, which is $\frac{1}{10}$ of an inch internal to and a little below the yellow spot, will be visible when the eye is rolled a little inwards. During the examination of a particular part of the fundus, the patient should be directed to fix his eye on a number, marked in large characters on a screen.

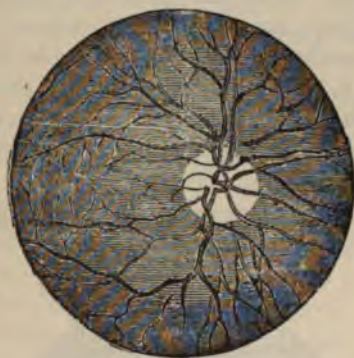


Fig. 88.¹

In dark complexioned persons the *choroid vessels* cannot be distinguished; but in those who have light hair and blue eyes, they may be readily seen, and even the arrangement of the *vasa vorticosa* observed. In Albinos it is possible to see the ciliary arteries in the *sclerotic* through the choroid.

DISEASES OF THE CHOROID.

This membrane, consisting of a fine network of delicate blood-vessels, is liable, not only to participate in several constitutional diseases, but also to implicate in its own disorders those important parts of the eye which depend on it for nutrition, or are otherwise connected with it. Lying between the sclerotic and retina, and forming anteriorly the choroid body and the iris, every change of the choroid must, more or less, affect those continuous and contiguous parts also.

1. CONGESTION OF THE CHOROID.—*Morbid Appearances.* Increased redness of the fundus, and enlargement, with more or less tortuosity of the blood-vessels. As the color of the fundus varies in intensity in dif-

¹ Fig. 88 represents the healthy fundus magnified by the ordinary lens; the optic nerve entrance, and the distribution of the retinal artery and nerve.

ferent people, we can only diagnose the condition satisfactorily by a comparative examination of the two eyes.

Symptoms.—Pain, or aching fulness, intolerance of light, lachrymation.

2. INFLAMMATION.—*Morbid Appearances.* Those of congestion in a higher degree, with effusion, either between the choroid and sclerotic, or between the choroid and retina, or bursting through the latter and escaping into the vitreous humor. The choroid itself may be swollen and opaque from interstitial effusion. In the disseminated and syphilitic varieties white patches and rounded spots of effusion, and black spots, composed of masses of pigment epithelium, are seen on the surface of the choroid. Capillary hæmorrhage is not common; when it does occur the extravasation is more extensive and less defined than when it takes place in the retina. The effused serum in front of the choroid may be deeply stained with blood. If the inflammation continue, it soon affects the vitreous humor, which becomes hazy. If the effused products have been limited to the substance of the choroid, they may be absorbed, and the eye recover. If the inflammation take on the suppurative form it may rapidly spread and disorganize the whole eye. Recovery is generally incomplete,



Fig. 89.

for as the exudation is removed, the choroid undergoes *atrophy*, the pigment cells are destroyed at the points where the inflammation developed itself, and corresponding parts of the surface of the white sclerotic are exposed. The fundus therefore presents yellowish-white patches with ragged margins, bounded by, and dappled over with, the black unaltered choroidal epithelium. If the inflammation have been more diffuse, only small black islands of unaltered pigment are left scattered over the pale fundus. The retinal vessels are seen undisturbed in front of this mottled field. (Fig. 89.)

Symptoms.—Those of congestion of the choroid, but more intense.

The external symptoms are usually little marked. In some cases there is no external indication of disease. When the ciliary processes are involved, there is vascularity of the corresponding part of the sclerotic, and fulness of the veins. The pupil is usually inactive.

Terminations.—Staphylomatous protrusions of the sclerotic, forming blue tumors close to the margin of the cornea. Glaucoma is no doubt a frequent result of choroiditis.

Treatment.—In congestion of the choroid the patient should avoid bright light, read little, and use large type. The cold douche should be frequently applied to the eyes, and occasionally to the whole head. If debility be present, quinine with mineral acids or the astringent chalybeates. When inflammation occurs, leeches or blisters to the temples; calomel and opium given to slightly affect the gums; and exclusion from light.

DISEASES OF THE RETINA.

1. ANÆMIA may arise from a general anæmic condition, or from the obstruction of the retinal artery by an embolus. In the first case there is simple pallor of the optic disc, rendering the veins very conspicuous. The *symptoms* are fatigue and dimness of vision. When it arises from blockade of the retinal artery, its branches are seen empty and contracted and the veins collapsed. Sudden blindness is the result.

2. ATROPHY OF THE OPTIC DISC AND RETINA.—Optic disc atrophied, sunken, pearly white, and very conspicuous; retinal vessels contracted. Retina, near optic disc and yellow spot, opaque and white. This condition is indicative of atrophy of the intracranial portion of the optic nerve constituting the so-called “cranial amaurosis.”

Symptoms.—Obscurity of vision coming on gradually or suddenly, followed by insensibility of the greater portion of the retina. The fingers can be dimly seen only in a certain limited position.

3. IMBIBITION AND SWELLING OF THE OPTIC NERVE, WITH FATTY DEGENERATION OF THE RETINA.—*Morbid Appearances.* Spots of an intense white color streaking the optic disc, indicating commencing induration of the nerve fibres; small white points grouped in the form of a star near the yellow spot, resulting from fatty degeneration of the anterior extremities of the radial fibres of the retina. Numerous minute linear extravasations of blood lie between the altered fibres, and give a more decided appearance of radiation to the diseased patch. In a more advanced stage, the swelling of the optic disc almost disappears, and the fundus is occupied by a patch of pearly whiteness, spotted and striated here and there with minute extravasations, and limited by an irregular dotted margin. The degenerate arteries and tortuous veins appear very distinct as they radiate over this mottled white field.

Symptoms.—Dimness of vision gradually increasing to complete blindness, without pain or external symptoms.

Cause.—"This condition of the retina is so characteristic of Bright's disease, that it allows one, by ophthalmoscopic examination alone, to recognize with certainty the affection of the kidney." (Liebreich, "Atlas der Ophthalmoscopie," p. 25.)

4. *RETINITIS.*—*Morbid Appearances.* Redness of the optic disc, becoming intense, obscuring its outline, and gradually increasing until it is lost to view; retinal veins enlarged and varicose. Sometimes the fundus is dotted over with red spots of blood; thickening of the retina by serous infiltration, and diminution of transparency, so that the deeper portions of the veins cannot be seen, and so wear the appearance of being interrupted. In proportion to the quantity and density of the opaque inflammatory products, the red color of the choroid becomes dimmed, and at last obscured, so that the retina is alone seen, of a dull drab or gray color, and presenting patches of ecchymosis.

In the *syphilitic variety* the affected portion of the retina is rendered opaque by solid effusion forming a white patch, stretching from the obscure margin of the optic disc round the yellow spot, and thence spreading as a streak towards the circumference. It is distinguished from the degeneration occurring in Bright's disease, by the absence of the sharp definition and vivid whiteness.

Symptoms.—Dim and distorted vision, lines appear zigzagged, and vertical objects out of the perpendicular; occasionally fiery flashes are noticed; there is considerable pain in the head.

Causes.—Strong light; the heat and light of large fires; light reflected from snow or sand; lightning; overstraining the eye in examining very minute objects; syphilis.

Treatment.—That of local inflammation. Quinine should be given early. If there be syphilitic taint, the treatment given p. 237.

5. *RETINAL HÆMORRHAGE* (Retinal apoplexy).—*Morbid appearances.* Extravasation of blood in spots, streaks, or patches. The effusion may take place between the layers of the retina; upon its surface, between it and the lining membrane; or it may rupture the latter, and pass into the vitreous humor. When recent, the color of the effusion is crimson, afterwards black or brown.

Symptoms.—More or less imperfect vision coming on suddenly after exertion in a stooping posture, or a blow on the globe of the eye. Only the half of an object may be seen. The pupils are usually dilated, sluggish or motionless. Small objects cannot be distinguished; but light, and large objects often appear of a deep red tint. Except in case of violence, there is no pain or intolerance of light.

Causes.—Violent straining, congestion of the retina; suppression of the menses; degeneration of the coats of the retinal vessels; blows on the eyeball; convulsions; apoplexy; Bright's disease.

Prognosis.—Dependent on the cause. *Favorable* if the patient be young and the effusion small. *Unfavorable* in proportion to the amount of direct violence, to the imperfection of vision, to the inactivity of the iris, and to the presence of pain within the eye or brain.

Treatment.—Leeches to the temples, a brisk hydragogue purgative, and the constant application of cold to the eye. If pain be present, opium may be given. If light be intolerable, the patient must be kept in the dark; and in any case direct light must be avoided. The sound eye must not be used in reading or fine work.

Under the most favorable circumstances, the effusion is slowly absorbed and the function of the retina tardily restored.

DISEASES OF THE CHOROID AND RETINA.

CHOROIDO-RETINITIS PIGMENTOSA.—*Morbid Appearances.* Those of atrophy. The choroid and retina are atrophied, speckled with pigment, and adherent. The disease is characterized by commencing in a more or less complete circle at the ora serrata (ant. margin of retina), and spreading backwards towards the optic disc, which ultimately becomes implicated in the atrophy.

Symptoms.—A general contraction of the field of vision, while the central parts retain their clearness; in two words—circumferential blindness. When the disease has made considerable advance towards the centre, night blindness occurs. The progress of the disease is often very slow, and there are no external evidences of its presence. As the fundus becomes affected, blindness creeps on, and the pupil becomes large and inactive. At length there is total blindness.

Causes.—Chronic inflammation and defective nutrition.

DETACHMENT OF THE RETINA FROM THE CHOROID (FLOATING RETINA).—*Morbid Appearances.* If the displacement be extensive, it is readily observed; not so if it be slight. It is first seen at the lowest part of the fundus, probably in consequence of the gravitation of the effused fluid. If this be serum, the detached retina projects into the vitreous humor as a tense vesicle, or folded membrane, which vibrates or undulates with every movement of the eye-ball. The limit of detachment is marked by the sudden bending of the vessels, and by a diminution in the color of that part of the fundus which is detached. In the earlier stages, the color of the choroid is transmitted through the retina, which still retains its transparency. In long-standing cases the detached retina becomes pearly white and opaque, and the color of the choroid is no longer apparent. The separation of the retina may be partial, or it may increase until it is wholly disunited from the choroid. It is then pushed forwards in the form of an irregular hollow cone, the apex of which is formed by the optic disc. In extreme cases it is reduced to a mere translucent cord traversing the posterior part of the axis of the globe.

Symptoms.—The disease comes on so insidiously, that the blindness which it causes is often discovered accidentally; for there is no pain, and the appearance of the eye is quite natural. When the disease is developed, the field of vision is obliterated in a degree corresponding to the limited detachment of the retina. If the *lower* half of the nervous layer be detached, the field is terminated by an irregular horizontal line, *above* which is darkness.

Diagnosis.—Cancerous tumors of the choroid may coexist, and be overlooked, in this condition of the retina. Effusions into, and opacities of, the vitreous membrane may be mistaken for it; the absence of these latter conditions is known by the appearance of the retinal vessels in the projection.

Cause.—Inflammation of the retina or choroid.

Treatment.—If the retina be wholly detached, the sight will never be regained. In cases of partial separation, the absorption will be promoted by the repeated application of blisters to the temple, and a prolonged course of iodide of iron.

DISEASES OF THE SCLEROTIC AND CHOROID.

STAPHYLOMA POSTICUM (SCLERECTASIA. SCLEROTICO-CHOROIDITIS POSTERIOR).

DEFINITION.—A conical protrusion backwards of a portion of the sclerotic, in the neighborhood of the optic nerve, usually on its outer side, involving the choroid and retina.

MORBID APPEARANCES.—A clear zone surrounding the optic nerve

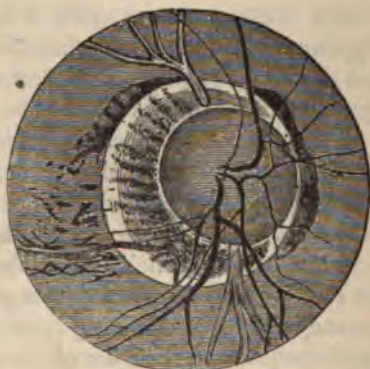


Fig. 90.

(Fig. 90), caused by removal of pigment from the atrophied choroid, which no longer prevents a view of the white sclerotic behind. The zone grows whiter as the disease advances, and grayish streaks or spots are ob-

served in it. At first the zone is incomplete, and in the form of a crescent joined by its concave edge to the optic nerve. As the atrophy of the choroid proceeds farther outwards, the white or mottled zone spreads in a more or less circular form. (Fig. 91.)

In more advanced stages the circular outline is lost, the atrophied choroid extending into rounded or oblong processes. (Fig. 92.)

The white crescentic figure so characteristic of this disease is the inner surface of the protruded sclerotic. When the staphyloma is deep, the adjacent portion of the sclero-choroidal ring bounding the optic nerve is obliterated, and the corresponding side of the optic nerve entrance is pulled down into the hollow. When this has happened the nerve entrance is seen in perspective, and its figure becomes elliptical in proportion as its slopes into the hollow. When the staphyloma is to the side of the optic



Fig. 91.

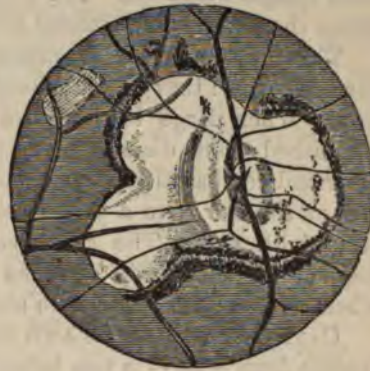


Fig. 92.

nerve, the major axis of the ellipse will of course be vertical. This condition is well represented in Fig. 92.

SYMPTOM.—Posterior staphyloma is the most frequent cause of myopia (short sight). When the yellow spot is involved in the disease, amblyopia results.

DIAGNOSIS.—The white crescentic figure near the optic nerve; distinctness of the retinal vessels ramifying in front of a white ground; and their undulatory course from the nerve entrance across the depression, are sure marks of posterior staphyloma.

CAUSE.—According to Von Ammon there exists in an early stage of foetal life a protuberance of the sclerotic on the outer side of the optic nerve which communicates with the anterior cerebral vesicle by means of an oval opening. There is therefore a natural tendency to this defect, and a very slight accident or arrest of development may cause it. Atrophy of the choroid; resulting in wasting, and distention of the sclerotic, may produce it in after-life.

TREATMENT.—The defect of vision to be remedied by the use of concave glasses, of suitable power.

DISEASES OF THE LENS.

Every morbid process that affects the lens results in more or less irremediable opacity, and bears the name of "cataract." It is conveniently divided into *lenticular* and *capsular*, according as it affects the lens or its capsule.

CONGENITAL CATARACT.—Four varieties. I. A minute chalky-white dot, deposited in the most superficial part of the lens within the capsule, and occupying the centre of a clear dark pupil (*C. centralis*). II. A more extensive deposit, occupying nearly the whole area of the pupil; it has a conical shape, with the apex directed forwards (*C. pyramidata*). III. A grayish white opacity composed of faint striæ, terminating in a little opaque white dot. IV. Irregular fatty or earthy patches, affecting either the anterior or posterior surface of the capsule.

These opacities are circumscribed, the rest of the lens remaining perfectly clear: they do not extend, and when small do not cause blindness. When large they require surgical interference. They are distinguished from diseases of deeper structures by their brilliant white color and comparatively superficial position. Morbid deposits in the fundus of the eye have a yellow color. Congenital cataract, as a rule, affects both eyes. The *symptoms* attendant upon these conditions are more or less cloudiness of vision and inability to distinguish type; but when the pupil is dilated with atropia, perfect and minute vision.

CATARACT IN ADULTS AND OLD PERSONS.—Complete opacity of lens (except from injury) is rare before forty. After fifty it is the commonest cause of failing sight. The *hard* variety spreads inwards from circumference to centre. Opaque streaks first appear at the extreme edge of the lens; then gradually coalesce into patches and spread in a radiating manner, first and chiefly over the posterior surface, and at length involve the anterior surface. After a year or more the whole lens becomes a little hazy, and opaque streaks begin to appear within the margin of the pupil, converging to the central line of vision; and slowly the pupil changes from black to milk white, and the opacity is complete. In rare instances the opaque lens becomes deep brown.

In the *fluid* form of cataract, no converging streaks are seen; the morbid process is one of softening, which goes on till the whole lens becomes a white, bluish white, or dirty gray pultaceous matter.

GLAUCOMA.

VARIETIES.—Acute and Chronic.

DEFINITIONS.—Inflammation of the interior of the eye leading to effusion of fluid within the eyeball, and destructive distention.

SYMPTOMS.—These come on between the ages of fifty and sixty, and both eyes are usually affected. In the *acute* form the disease begins with sudden and violent pain in the eyeball and temple, followed by rapid extinction of vision; the pupil is widely dilated, motionless, sometimes transversely oval, and of a greenish tint; the iris bulges forward, and its veins are often distinctly enlarged; the lens is hazy or even milky, and advanced almost to the posterior surface of the cornea, which is dull; the sclerotic and conjunctiva behind the margin of the cornea are congested. The globe feels very hard, and is tender.

The *chronic* form begins very insidiously; dimness of sight, dull aching pain in the eye or head, and flashes of light across the field of vision, sooner or later indicate internal disease. The patient becomes gradually blind, the pupil enlarged and insensible, and the eye ultimately assumes the appearances above described, but the distended globe is not painful on pressure. Chronic iritis and cataract appear sooner or later, and large dark purple veins appear on the sclerotic.

When the eyeball is distended by effusion, the termination of the optic nerve losing the support of the sclerotic, yields to the pressure, and as it is pushed backwards, there is a corresponding depression of the optic disc. This condition is distinctly marked by the appearance of the blood-vessels in the optic disc and at its margins. At the bottom of the depression the main trunks are spread out, and appear smaller and quite unconnected with the larger prolongations at the margin of the excavation. By focussing the vessels at the bottom of the depression, and then gradually advancing the lens, so as to advance the focus, we may trace the continuity of the central and peripheral trunks, and, at the same time, measure approximately the depth of the depression. Extravasations of blood in the retina are very common.

CAUSE.—Inflammation, probably commencing in the choroid.

PROGNOSIS.—Extremely unfavorable.

TREATMENT.—Mercurial salivation does not appear to arrest the progress of the disease. In the *acute* form leeches, and subsequently blisters to the temples, the removal of fluid by the insertion of a fine grooved needle; cold affusions to the head; opium, and quinine in full doses; an occasional brisk purgative.

The *chronic* disease has been much alleviated, and sight partially restored, by extraction of the lens and excision of a portion of the iris.

OTHER DISEASES AND DEFECTS OF THE EYE.

1. SPECIFIC DISEASE OF THE EYE.

The internal tunics of the eye are often the seat of cancerous and tubercular deposits, and the lens, vitreous humor, and anterior and pos-

terior chambers are sometimes occupied by parasites (*Cysticercus tenuicollis*, *Filaria oculi*, and *Distomum ophthalmobium*). It is important to be able to recognize a *melanotic growth* in the earliest stages of its existence, in order that the eyeball may be extirpated, and the disease thus removed before it has involved other structures behind the globe. Dull pain, increasing dimness of vision; or dilated and sluggish pupil, a bright metallic reflection from the fundus, and the appearance of a vascular tumor projecting into the vitreous humor, are the symptoms of the disease.

The diagnosis of cancer mainly rests on the presence of blood-vessels different in their arrangement, or distinct from those of the retina. But medullary and melanotic cancer often have their seat in the choroid, and then the retina is pushed forwards and the ophthalmoscopic indications are not diagnostic.

Tubercular deposit forms a bright yellowish *non-vascular* tumor.

Entozoa may be distinguished by their form and movements.

2. AMAUROSIS.—GUTTA SERENA.

Although this indefinite term is well-nigh obsolete, we may conveniently use it here for the purpose of enumerating all causes of blindness, except those which are discoverable by the unaided eye, such as opacities of the cornea and lens.

Amaurosis may be subdivided into two kinds: 1. Temporary or functional. 2. Permanent or organic.

Temporary amaurosis is due to the following causes:—Exposure to intense light, loss of blood, diphtheria.

Permanent amaurosis may be due either to interocular or to intercranial disease. In the former case it is caused by fatty degeneration of the retina, as in Bright's disease; retinitis; retinal hæmorrhage; choroiditis with effusion of serum or blood, causing detachment of the retina; scrofulous or melanotic tumors, immediately behind or in front of the retina; glaucoma.

Intercranial amaurosis may be caused by pressure upon or atrophy of any portion of the optic nerves, or of those parts of the optic thalami and corpora geniculata in which they have their origin.

The ophthalmoscope will generally enable us to discover the cause of the blindness. If the disease be intercranial, the optic nerve entrance will afford characteristic indications. (See Atrophy of Optic Disc, p. 241.) The treatment must be determined by the cause.

3. DEFECTS AND DISPROPORTION OF THE REFRACTIVE MEDIA.

Such defects as the following are very common; and since some are remediable, while others occasionally give rise to alarm, it is necessary that the practitioner should be familiar with them.

ASTIGMATISM.—Under this title, Donders, “Accommodation and Refraction,” includes those phenomena which result from inequality of the refractive media. The error chiefly lies in the cornea, which, on account of variation in thickness or density, produces the same effect on vision as a rough pane of crown glass interposed between the eye and a distant object. The rays of light being unequally refracted as they pass through the several parts of the unequal cornea, straight lines become zigzagged and broken, and circles lose their even outline.

MYOPIA.—*Short sight.* An inability to distinguish near objects at the usual distance from the eye. It is caused by undue convexity of the refracting media, whereby the image of an object held at the usual distance is brought to a focus at a point in front of the retina; and in order to throw the image further back upon the retina, the object must be approximated to the eye.

Anything which causes a prolongation of the visual axis must result in myopia. According to Liebreich, Donders, and others, posterior staphyloma (see p. 244) is the most frequent cause of this defect.

Myopia is remedied by the use of biconcave glasses of such a focus that distant objects shall appear distinct and undiminished.

PRESBYOPIA.—*Old or long sight.* Inability to discern near objects. This is caused by flatness of the refracting media, whereby the image of an object held at the usual distance from the eye is brought to a focus at a point behind the retina, and in order to advance it, it is necessary to remove the object to an unusual distance.

This defect is compensated by the use of biconvex glasses of suitable convexity.

MUSCÆ VOLITANTES.—Some persons are annoyed and alarmed by minute dark specks or beaded filaments, which, by floating in front of the retinal image, puzzle and constantly threaten to obscure vision. “It the eye be directed towards a clear sky, and then kept steadily fixed, the spots appear to sink slowly downwards. A brisk movement of the eye instantly whisks the little bodies about in various directions, and then as soon as the eye is steadied, they again slowly sail across the field of vision.” (Dixon on Diseases of the Eye.) They are not symptomatic of any organic disease, and need not excite alarm.

DISEASES OF THE EAR.

1. OTITIS EXTERNA . . . Inflammation of the External Ear.
 2. OTITIS INTERNA . . . Inflammation of the Internal Ear.
 3. SURDITAS . . . Deafness.
-

OTITIS EXTERNA.—INFLAMMATION OF THE EXTERNAL EAR.

SYMPTOMS.—In the *acute* stage, pain in the passage, gradually increasing and augmented by cold, pressure, and the motions of the jaw;

deafness; noises in the ear; redness and swelling of the lining membrane; and after a few hours, or one or two days, a thin acrid foetid discharge, often tinged with blood, and becoming puriform. The inflammation is followed by enlargement of the follicles, and terminates by suppuration, ulceration, and sometimes a painful granular condition of the mucous membrane, when the discharge becomes *chronic*.

CAUSES.—*Predisposing*. Childhood; the scrofulous diathesis.—*Exciting*. Cold; the introduction of foreign bodies; extension of inflammation from surrounding parts; the exanthemata, especially scarlatina.

TREATMENT.—Hot poultices and fomentations; the injection of warm water, alone or containing from five to ten grains of acetate of lead to the ounce; in severe cases, leeches behind the ear, blisters over the mastoid process; aperients. If an abscess form, it must be punctured. In the *chronic* form, astringents, injections of alum, sulphate of zinc, and nitrate of silver. If granulations of the mucous membrane have formed, tents of lint or cotton, dipped in zinc ointment, may be introduced into the meatus. The general treatment will consist in the steady use of aperients and alteratives, nourishing diet, pure air, and cleanliness; and if there be much debility, chalybeate tonics. If the discharge should suddenly cease, and symptoms of head affection occur, the treatment for inflammation of the internal ear will be required.

OTITIS INTERNA.—INFLAMMATION OF THE INTERNAL EAR.

1. ACUTE INFLAMMATION OF THE INTERNAL EAR.

SYMPTOMS.—Acute, deep seated pain in the ear, and in the head and face of the same side, increased by mastication; a sense of tension in the ear; loud noises; deafness; sometimes swelling of the tonsils, with dull pain or itching at the back of the throat. There is a frequent, quick, and hard pulse, hot skin, anxious countenance, furred tongue, general febrile excitement, restlessness, and in very severe cases, delirium and convulsions.

TERMINATIONS.—In resolution, with gradual subsidence of the symptoms. In suppuration, with throbbing pain and great tension, followed by discharge of matter from the external meatus (the membrana tympani having been ruptured), through the Eustachian tube into the throat, or through an opening in the mastoid process.

CAUSES.—Those of inflammation of the external ear; the extension of inflammation from the throat through the Eustachian tube.

DIAGNOSIS.—From inflammation of the external ear by the deeper seated pain, and in the early stage the absence of discharge from the external meatus. The rupture of the membrana tympani may be recognized by the speculum; and if the patient expire forcibly, the mouth and nostrils being closed, air will issue from the ear.

PROGNOSIS.—Deafness is the increasing effect of this disease; and inflammation of the membranes of the brain, an occasional result.

TREATMENT.—Leeches behind the ear, followed by blisters; aperients. If suppuration have taken place, and there be extreme tension, with throbbing pain, and violent headache or delirium, instantaneous relief may be afforded by puncturing the *membrana tympani*, washing the ear out repeatedly with tepid water, and facilitating the discharge of matter, by causing the patient to lie on the affected side. If there be swelling or inflammation of the fauces, astringent gargles or the inhalation of steam. If, after the pain has subsided, the Eustachian tube be obstructed, the air douche or the ear catheter should be used.

2. CHRONIC INFLAMMATION OF THE INTERNAL EAR.

SYMPTOMS.—The principal symptom of chronic inflammation of the ear, whether external or internal, is an intermittent discharge of offensive, muco-purulent, or purulent matter (*otorrhœa*), from the external meatus, with deafness more or less complete. The tympanic membrane will be found more or less completely destroyed, exposing the ossicula; or these may have been discharged, when the tympanic cavity will be found in a granular condition.

TREATMENT.—The same as in chronic inflammation of the external ear, combined with the use of gargles, the air douche, or the ear catheter, in order to keep the Eustachian canal open. The purely medical treatment will be regulated by the existing state of the constitution. If it be connected with scrofula or syphilis, the remedies proper to those diseases. Tonics and alteratives are requisite in all form of the disease.

SURDITAS.—DEAFNESS.

CAUSES.—Congenital absence, or excessive contraction of the external meatus. Accumulation of wax; inflammation and swelling of the meatus; polypi; osseous tumors; foreign bodies, such as wool and hairs in the meatus. Inflammation, calcareous degeneration, extreme relaxation or destruction of the *membrana tympani*. All these cases are readily observed, and the treatment is obvious. The following causes are more obscure; inflammatory thickening of the Eustachian tube at its faucial orifice or elsewhere, collections of pus, mucus, or blood in the tympanum; ankylosis of the ossicula, and disease of the auditory nerve.

DIAGNOSIS.—To find which of these obscure causes is present, we must ascertain the condition of the *membrana tympani*, the Eustachian canal, the tympanum, and the auditory nerve.

1. Examined by the speculum, the drum head, directed downwards and forwards, appears as a delicate gray or yellowish gray, shining membrane with a whiter ridge (handle of the malleus) commencing as a

smooth rounded tubercle above, and running downwards and very little backwards, to the centre, which is drawn a little inwards, so as to make the outer surface slightly concave. The outer and lower quarter, however, is a little convex, and reflects a cone of light, spreading from the centre forwards and downwards. As the membrane is bulged outwards or inwards by variation of the tension of the air in the tympanum, so the cone of light varies, the apex taking the place of the base, and *vice versa*. In acute inflammation of the middle ear, the drum head is streaked with blood-vessels, or uniformly red; and the concavity is increased (from absorption of portions of the ear now imprisoned by swelling of the lining membrane of the Eustachian canal), unless there be an accumulation of fluid, when the membrane is of course pushed outwards.

2. In a state of rest of the muscles of the palate, the air in the tympanum is shut off from that of the throat, but in every act of swallowing the faucial extremity of the Eustachian tube is opened by the contraction of the levator and tensor palati. Variation of the cone of light on the drum head in swallowing is proof of a healthy state of the Eustachian canal. If the drum head be perforated, air from the throat passes readily into the outer passages of the ear, when the patient expires forcibly with the mouth and nostrils closed; and fluids, on the other hand, thrown into the external meatus, pass readily into the pharynx.

3. Auscultation of the tympanum is thus performed:—one end of an elastic tube is placed in the patient's ear, and the other in one of the operator's. The patient takes some water into his mouth, and when the mouth is closed, and the air douche fixed on the nostrils, he swallows a portion of the fluid from time to time. At the same moment air is forced into the tympanum by moderate pressure of the air bag. When the air enters the tympanum, the patient hears an explosive noise, and the operator a thud or crackling. If the cavity be healthy, he hears a rustling noise like the pattering of fine rain; if the lining membrane be abnormally dry, a harsh snapping sound; if the Eustachian canal be thickened, a sibilant sound; gurgling indicates excess of fluid; and a whistling sound, perforation of the membrana tympani: in which case the speculum will show an oozing of pus through the aperture.

4. A healthy state of the auditory nerve is readily known by the tuning-fork, which is distinctly heard when brought into *contact* with the teeth or bones of the head, and is more distinctly heard on the *deaf* side. This will be the case when neither watch nor tuning-fork, brought as near to the deaf ear as possible, without touching, can be heard. Diseases of the auditory nerve generally implicate the portio dura, and facial palsy of one side results.

Functional deafness may result from concussion, sudden and loud noises, poisons, or fever.

TREATMENT.—Apart from inflammation and accumulations in the tympanum already treated of, this will chiefly have reference to obstruction

or occlusion of the Eustachian canal; and to perforation of the membrana tympani. To relieve the former condition, the frequent use of the air douche, as described under 3, is invaluable. When we fail to open the canal by this means, recourse must be had to the ear catheter. The effect of perforation of the drum head may be temporarily relieved by a little pellet of moistened cotton wool, or Toynbee's artificial membrana tympani placed against the aperture.

CHAPTER VIII.

CUTANEOUS DISEASES.

1. PARASITICAL. 2. NON-PARASITICAL.

PARASITICAL.

1. DERMATOZOA Animal Parasites.
2. DERMATOPHYTA Vegetable Parasites.

NON-PARASITICAL.

- | | | | |
|--------------------------|-----------|------------------------|------------|
| 1. EXANTHEMATA | Rashes. | 5. PAPULÆ | Pimples. |
| 2. VESICULÆ | Vesicles. | 6. SQUAMÆ | Scales. |
| 3. BULLÆ | Blebs. | 7. TUBERCULÆ | Tubercles. |
| 4. PUSTULÆ | Pustules. | 8. MACULÆ | Spots. |

9. OTHER DISEASES.

GENERAL OBSERVATIONS ON CUTANEOUS DISEASES.

IN order to take a proper view of diseases of the skin, the complexity of its structure and function must be duly considered. It forms a most extensive vascular and exhalant surface, the nature and functions of which bring it into direct reciprocal relation both with the lungs and the kidneys. It has a proper glandular apparatus—the sebaceous. It contains the organ of touch, and is the seat of common sensation. It is furnished with hairs and nails, which share every derangement of the part of the skin to which they are attached, and of which they are but modified processes. A surface so richly supplied with blood-vessels, nerves, and glands, must necessarily be very liable to derangement from variations of temperature and moisture; and while its vascular surface sympathizes with every derangement of the circulation in the internal organs, its protective cellular covering, and glandular orifices are exposed to the invasions of parasites.

The classification of skin diseases is difficult and unsatisfactory. In this work something has been done towards the attainment of simplicity by separating the diseases due to parasites, and subdividing them into two orders.

The subdivision adopted for the other orders is convenient; but it must be borne in mind that there are no abrupt lines of demarcation between them. An exanthem may pass through the successive stages of papule, vesicle, pustule, and scale in the natural sequence of morbid action and without any new exciting cause.

A few diseases are placed by themselves, as not admitting of classification; lupus, furuncle, hæmorrhage, and abnormal perspiration.

DEFINITIONS.

1. *Exanthemata. Rashes.*—Superficial red patches or points variously shaped, circumscribed or diffused, disappearing on pressure, rarely passing into vesicles, and terminating by resolution or desquamation.

2. *Vesiculæ. Vesicles.*—Small, round, pointed elevations of the cuticle, containing a colorless, transparent or opaque, pearly lymph. They break and discharge their contents, and are succeeded by scurf, scales, or sores. Sometimes their contents are absorbed.

3. *Bullæ. Blebs.*—Vesicles of larger size.

4. *Pustulæ. Pustules.*—Circumscribed elevations of the cuticle, containing pus, and terminating in thick crusts or scabs.

5. *Papulæ. Pimples.*—Small, solid, pointed elevations of the skin, usually terminating in scurf; rarely by ulceration of the summit.

6. *Squamæ. Scales.*—Hard opaque layers of cuticle, covering papulæ or inflamed surfaces; continually detached and renewed.

7. *Tuberculæ. Tubercles.*—Small, hard, persistent tumors of the skin, larger than papulæ, with or without an inflamed base, and terminating in resolution, partial suppuration, or ulceration.

8. *Maculæ. Spots.*—Permanent discolorations, or decoloration, of the skin, often accompanied by change of structure.

PARASITICAL SKIN DISEASES.

ORDER I.

DERMATOZOA.—ANIMAL PARASITES.

ACARUS SCABIEI . . . The Itch.

ACARUS FOLLICULORUM.

PHTHIRIASIS . . . Lousiness.

FILARIA MEDINENSIS . Guinea Worm.

SCABIES. PSORA.—THE ITCH.

SYMPTOMS.—The usual seat of this eruption is between the fingers, on the wrists, inside the forearm, and at the bends of the joints; but it

may affect any part of the body. It generally appears a few days after exposure to the contagion, and is preceded for one or two days by itching, increased towards evening and at night, and by all causes which excite the circulation. The eruption consists either of pale rose-colored or grayish pimples, or of pointed vesicles, containing serum, raised slightly above the surface. In severe cases these vesicles enlarge, and become filled with pus (*Scabies purulenta*), or they are destroyed by friction, and leave small round dark spots. The pimples or vesicles are either single or in small groups; rarely in patches of any size. The disease is attended throughout by most distressing itching.

CAUSES.—*Predisposing.* Neglect of personal cleanliness.—*Exciting.* Contagion; the *Acarus* (*Sarcoptes*, *Cheyletes*) *scabiei* (Fig. 93) is common



Fig. 93.



Fig. 94.

to man and the domestic animals. Half an hour after it is placed on the skin it bores perpendicularly through the cuticle, and then obliquely through the softer cells beneath to the cutis, in a little circular depression of which it lodges itself.

DIAGNOSIS.—The vesicular and pustular forms are distinguished by a little black line which can usually be traced from the centre of the itch vesicle outwards for a short distance. This is the tunnel formed by the acarus. When scabies assumes the papular form, and the summits of the pimples are scratched off, so as to leave round dark spots, it is difficult to distinguish from *Prurigo senilis*. Advanced age affords a probability in favor of the latter; while the fact of more than one member of the same family being affected is conclusive as to the former. From *lichen*, by the latter being papular, more clustered, and, if situated on the hand, being on the back, and not between the fingers. From *herpes* and *eczema*, by the vesicles being more isolated and in smaller clusters, by the

intense itching and by their contagious nature, and often by their situation. Scabies very rarely attacks the face.

TREATMENT.—Sulphur ointment, or an ointment of sulphur and carbonate of potash; sulphur baths; sulphuret of lime, with olive oil; a strong alcoholic solution of stavesacre. Cleanliness and the warm bath, and gentle aperients if required, are useful auxiliaries.

ACARUS FOLLICULORUM.

SYNONYM.—*Demodex folliculorum*. *Steazoon folliculorum*.

This parasite (Fig. 94) was discovered by Henle and Gustave Simon, in 1842. In England it is undoubtedly very rare. It sometimes occurs singly, sometimes in groups of as many as thirteen in a follicle; they usually occupy the duct near the orifice, towards which the abdomen is directed, the head lying deeper in the gland.

According to Erasmus Wilson the animal varies in length from the $\frac{1}{16}$ to the $\frac{1}{8}$ of an inch. Much difference exists in the length and development of the abdomen. As represented in Fig. 94 it is much elongated. In the other varieties there are four pairs of legs, and the abdomen is shorter.

SYMPTOMS.—This parasite usually causes no disturbance, and appears to be compatible with a perfectly healthy state of the sebaceous follicles; sometimes, however, it produces pustular and indurated acne of rather an inveterate form.

TREATMENT.—The follicles should be emptied by pressure, and unguentum sulphuris, or a solution sulphur and camphor in spirit of turpentine, rubbed in.

PHTHIRIASIS.—LOUSINESS.

Three species of louse take up their abode on the human body. They are the following:—*Pediculus capitis*, Fig. 95; *P. corporis*, Fig. 96; and *P. pubis*, Fig. 97.



Fig. 95.



Fig. 96.



Fig. 97.

SYMPTOMS.—They run about and bite the skin, producing intolerable itching, and occasionally pustular eruptions; their eggs (popularly called *nits*) are readily observed attached to the hairs.

TREATMENT.—Mercurial ointment, well rubbed in, is an effectual remedy against the *P. pubis*. The unguentum hydrargyri ammoniata is equally efficacious against the other two species. When the use of mercurial preparations is objectionable, stavesacre ointment may be substituted.

FILARIA MEDINENSIS.—GUINEA WORM.

SYNONYMS.—Dracunculus. Hair-worm.

SYMPTOMS.—An itching is felt in the skin of some part of the arms or legs; most frequently in the legs, and especially in the feet. This is soon followed by a small vesicle, succeeded by an indolent inflamed swelling like a boil, which breaks and discharges. The head of the worm gradually protrudes through the opening so as to be easily seized; but unskilful attempts to withdraw it are apt to be followed by acute inflammation, extensive suppuration, and, in some cases, mortification.

DIAGNOSIS.—The length of the worm varies from half a foot to twelve feet. Its form and size are shown in the subjoined engraving (Fig. 98) of a worm extracted from the heel of a negro, and preserved in the Museum at King's College. The form of the tail is seen at *a*. The head is of a darker color than the body.



Fig. 98.

CAUSES.—*Predisposing.* The rainy seasons in the tropical regions of Asia, Africa, and especially Upper Egypt, Nubia, and Guinea.—*Exciting.* The worm in an embryo state pierces the skin (usually the feet and hands), immersed in, or otherwise brought into contact with, the water which it inhabits.

TREATMENT.—The worm to be cautiously extracted, by rolling a

fresh portion each day round a quill strapped in the intervals to the adjoining skin. Suppuration to be promoted by poultices.

PROPHYLAXIS.—When the disease prevails among bodies of men, separation from the sound, and scrupulous cleanliness. (Consult Sir James McGrigor's "Medical Sketches of the Expedition to Egypt from India.")

ORDER II.

VEGETABLE PARASITES.

¹ EPIDERMMYCOSIS VERSICOLOR .	Chloasma.
EPIDERMMYCOSIS DECALVANS .	Baldness.
EPIDERMMYCOSIS TONSURANS .	Ringworm of the Scalp.
DERMMYCOSIS CIRCINATA . .	Ringworm.
DERMMYCOSIS SYCOSIS . . .	Parasitic Chin Welk.
DERMMYCOSIS FAVOSA . . .	Scall head.
PLICA POLONICA	The Polish Plait.
FUNGUS FOOT OF INDIA.	

EPIDERMMYCOSIS.—MOULDINESS OF THE EPIDERM; AND DERM-MYCOSIS.—MOULDINESS OF THE SKIN.

Under these generic terms are included all diseases of the skin and its appendages, which are known to be due to vegetable parasites.

The confusion in the nomenclature of skin diseases is so complete, that an apology for employing new terms which are at once significant and descriptive is scarcely needed. In applying these new terms, we shall associate them with the names in common use, in order that the diseases to which these refer may be the more readily recognized.

EPIDERMMYCOSIS VERSICOLOR.

SYNONYMS.—Tinea and Pityriasis versicolor. Chloasma, Pannus hepaticus. Liver spots.

SYMPTOMS.—Delicate pinkish, grayish, or light yellowish-brown, round spots, varying in diameter from the $\frac{1}{8}$ of an inch to an inch or more, in the axillary, pubic, and inguinal regions, gradually extending and becoming confluent, so as to form continuous patches with sinuous margins, covering the greater part of the chest, abdomen, and shoulders, leaving here and there a small island of healthy skin. Its favorite seat is under the hairs about the pubes. It never affects parts exposed to the light. The color varies much; in most persons of dark complexions, it has a light dirty-brown color, and is separated from the surrounding

¹ See Glossary.

healthy skin by a sharp line; in others the color is fainter, and resembles sunburnt skin. Occasionally only a few small circles of skin are unaffected, forming, perhaps, a single cluster, not larger than the hand, on some part of the trunk. The hue of the diseased skin corresponds so closely to that of the exposed parts of the body that I have known the few pearl-like spots of healthy skin to be mistaken, under the name of *albinism*, for the diseased skin.

Usually there is no breach of surface, and the disease is apparently nothing more than a spreading discoloration; but on examining the discolored skin attentively, the cuticle is observed to be minutely wrinkled, and on scraping it with a scalpel we find that the discolored portions may be separated as minute silvery scales, whereas the healthy cuticle is not readily detached.

The disease being entirely confined to the epidermis, is unaccompanied by irritation; so that in some cases, when the patient's attention is



Fig. 99.

first called to it, he doubts whether or not the discoloration is congenital. When the disease is of long standing, the cuticle becomes loose, and a minute silvery desquamation takes place continuously.

CAUSE.—A fungus, called *microsporon furfur*, composed of minute jointed filaments forming a close network among the cells of the cuticle, and developing vast numbers of bright spherical, nearly equal-sized spores, in patches of various sizes (Fig. 99).

CONTAGION.—The fungus may be easily transplanted to the healthy skin by lying between sheets previously used by one affected with the disease. The fungus never attacks persons before the age of puberty. According to my own observations it is more frequently found in men than in women, and in those who lead a dissolute life. Robust health and cleanliness confer no protection whatever. The gentleman from whom the specimen delineated in Fig. 99 was obtained, was of the most scrupulously cleanly habits; yet the disease spread unchecked for two years. Indeed daily baths appear to facilitate its development.

DIAGNOSIS.—The characteristic appearance under the microscope. The cuticle should be scraped off with a scalpel, placed on a glass slide, and wetted with weak solution of ammonia, which renders the cells transparent. So minute is the fungus that a $\frac{1}{4}$ object glass, at least, is necessary. Epidermmycosis versicolor is frequently mistaken for syphilitic eruptions, and the patient subjected to treatment accordingly.

TREATMENT.—Solution of chloride of mercury (gr. i.-iii. to f $\frac{3}{4}$ i.); or hyposulphite of soda (gr. xxx. to f $\frac{3}{4}$ i.); sulphurous acid daily applied to the skin, or a saturated solution of bichloride of soda. The disease rapidly yields, and the skin resumes its healthy color under this treatment.

EPIDERMMYCOSIS DECALVANS.

SYNONYMS.—Tinea and Porrigo decalvans. Alopecia areata. Phyto-alopecia.

DEFINITION.—Mouldiness of the roots of the hair, resulting in baldness.

SYMPTOMS.—The hair becomes dry, withered, and faded; falls off, and is not regenerated, leaving more or less circular patches of smooth apparently healthy skin.

CAUSE AND PATHOLOGY.—The development of the fungus *Microsporon Audouini* in the roots of the hair, within the follicles, and for a little distance beyond. The plant is composed of minute round and oval spores, and short branched filaments. It forms a uniform layer round the roots of the hair, and invades the cuticle and cortex, rendering the hair opaque and brittle. The plant develops very rapidly.

This form must be carefully distinguished from non-parasitic Alopecia, which is usually a much more general affection (see p.

CONTAGION.—The disease is readily communicated by the spores of the fungus.

TREATMENT.—That recommended for Epidermmycosis versicolor.

EPIDERMMYCOSIS TONSURANS.—RINGWORM OF THE SCALP.

SYNONYMS.—Tinea tonsurans. Porrigo scutalata. Herpes tonsdens. Trichosis furfurans. Rhizo-phyto-alopecia.

DEFINITION.—Mouldiness of the roots of the hairs of the head, resulting in their breaking away nearly on a level with the surface of the skin.

SYMPTOMS.—The hairs are thickened, bent at their junction with the skin, have a withered appearance, become very brittle at the roots, and ultimately break off at a distance of one or two lines from the surface. The stumps present a ragged, split appearance, and readily break if an attempt be made to remove them from the follicle. The disease affects

the hair in dry, scaly, circular patches, varying from half an inch to four inches in diameter; the contiguous cuticle sharing in the disease, and forming characteristic scaly fringes round the orifices of the hair follicles. Vesicles and dry scabs are occasionally formed during the progress of the disease.

In some cases the hair follicles become inflamed and thickened, giving a prominence to the affected patch. After a time the follicles gape and exsude a clear viscid fluid. The part feels boggy and the neighboring glands become swollen. To this variety the term *Kerion* is applied.

The nails are occasionally affected in Favus and Ringworm (*Onychomycosis*); they become coarsely striated, thickened and arched, the edges are friable and lamellated, and the bed of the nail becomes atrophied and invaded by an accumulation of dry scales in which the spores of the fungus may be detected.



Fig. 100.



Fig. 101.

CAUSE AND PATHOLOGY.—The roots of the hair are found to be completely pervaded and split up by the *Trichophyton tonsurans* (Figs. 100, 101), a fungus composed of minute round or oval spores, destitute of granules, and short curved filaments.

CONTAGION.—The disease is readily communicated by the spores. Cats are especially liable to this disease, and in London are certainly the chief means of its dissemination. Fig. 101 represents one of the broken hairs of the nearly bald face of a young cat. The fungus has almost severed the hair at the junction 2, of the shaft, and root *d*; at *d*, the soft cells of the hair bulb are represented.

TREATMENT.—That recommended for *Epidermycosis versicolor*.

DERMMYCOSIS CIRCINATA.—RINGWORM.

SYNONYMS.—*Tinea circinata*. *Herpes circinata*.

DEFINITION.—Mouldiness of the skin, chiefly of the epidermis, spreading in the form of rings.

SYMPTOMS.—At first a number of very small vesicles arranged in circles on a red, inflamed base. The breadth of the ring is usually about a quarter of an inch; the base itself varying from a few lines to one or two inches. The vesicles crack, and the secretion dries and forms scales which are readily detached. External to these scales a fresh ring of vesicles is developed, which also become converted into scales, and thus the process goes on, the patch constantly widening by centrifugal growth, and leaving the parts previously affected inflamed and covered with dry scales. The disease chiefly attacks the young, and usually appears on the face, neck, chest, and arms. When it affects the scalp, it takes on the same form and produces the same effect as *Epidermmycosis tonsurans*, with which it is probably identical. The disease is highly contagious.

The development of the fungus is greatly favored by the heat and warmth of the axilla or the fork, and it is here that we see the most luxuriant development of the disease. The rings are of great size, the margins very distinct, the whole patch of a deep red color, and there is much irritation. This is the so-called *Eczema marginatum*.

The *cause, mode of propagation, and treatment*, are those described under *Epidermmycosis tonsurans*.

DERMMYCOSIS SYCOSIS.—PARASITIC SYCOSIS.

SYNONYMS.—*Tinea sycosis*. Mentagrophyte. Chin Welk. Trichomycosis.

This form must be distinguished from that described p. 278.

SYMPTOMS.—Redness, tension and smarting of the skin of the chin, lower jaw, or upper lip, followed by an eruption of small red points, which, in a day or two, ripen into distinct pointed pustules, traversed by a single hair. After five or six days more, the pustules discharge their contents, and form thin brownish scabs, which fall off, and are sometimes not renewed, the disease terminating in from ten days to a fortnight; but usually successive crops are developed, and, in extreme cases, the skin is covered with a thick, yellowish-brown crust, in which the hairs are matted. When the disease has continued some time the beard falls off. In chronic cases, the skin of the parts affected is covered with tubercles. The disease may attack any part where the hairs are strong. It is often very obstinate.

CAUSE AND PATHOLOGY.—The disease is due to the development of the *Microsporon mentagrophytes* (Fig. 102), which invades the hair follicles and forms a sheath round the roots of the hairs. The fungus luxuriates in the epithelial layer of the hair follicle, and sets up inflammation in the subjacent vascular parts.

DIAGNOSIS.—A friable and loose condition of the hairs, and the

presence of the fungus. The spores are very minute, and the filaments branch at acute angles and are annulated.

TREATMENT.—The hair should be removed from the affected follicles by pincers, and a solution of corrosive sublimate (gr. x. to $\frac{3}{4}$ i.) should be applied with a camel hair brush. Epilation is usually easy and painless, for the tendency of the disease is to loosen the hair.

DERMMYCOSIS FAVOSA.—FAVUS.

SYNONYMS.—*Tinea favosa*, *annularis*, *et rugosa*. *Porrigo lupinosa*, *et scutulata*. Scall head. Honeycomb scall.

VARIETIES.—*Porrigo favosa*; *porrigo scutulata*; *porrigo decalvans*.

SYMPTOMS.—Small round pustules, usually seated on the hairy scalp, and containing a yellow matter, which hardens into a prominent scab with a central depression (*favus*). The disease generally attacks children, but is not confined to them. The primary seat of the disease is in the hair follicles.



Fig. 102.



Fig. 103.

It is not confined to the scalp, but may attack the chin, eyebrows, or forehead, and, in rare instances, the trunk or extremities. The scabs have an offensive mousy odor. When the pustules are closely set, the yellow crusts become confluent, and present a honeycombed appearance. If few pustules only appear, and their development be not interfered with, the favi become greatly enlarged, sometimes to the diameter of $1\frac{1}{2}$ inch; and form circular, yellow, dry elevations, depressed in the centre, and with smooth, rounded, varnished margins. These large crusts may become confluent, and then form the variety known as *Porrigo lupinosa*. When the disease is of some duration, it may be seen at the same time in all its stages—the red patches, the cluster of yellow pustules,

crusts of various thickness, and bald spots. If the scabs be removed by poultices, the favi are reproduced on the clean raw surface. When the disease disappears, the hair is slowly reproduced, but sometimes there is permanent baldness. The nails are occasionally affected.

CAUSES AND PATHOLOGY.—The disease is due to the development of the *Achorion Schönleini* (Fig. 103), in the deeper layers of the epidermis, and on the surface of the cutis. At first the deeper epithelial cells are disturbed. The cuticle, and subsequently the whole epidermis, becomes raised into a circular, yellowish-white spot, which increases in size, assumes a sulphur yellow color, and becomes a favus. When, as is commonly the case, the parasite attacks the hair follicles, the depressed centre of each favus is occupied by a hair, which becomes thickened, opaque, non-elastic, and may readily be removed. When the crusts are separated, soaked in ammonia, and examined, they are found to be chiefly composed of the spores and large-jointed spore—containing filaments of the fungus.

DIAGNOSIS.—The presence of the fungus distinguishes the disease from eczema and impetigo; and the scabs of eczema have never the characteristic alveolar depressions. The pustules of impetigo are prominent and convex, seated on an inflamed base, and the purulent contents have no trace of fungi.

PROGNOSIS.—The disease is often obstinate and of long duration.

TREATMENT.—The hair must be cut close with sharp scissors, and well washed, and the scabs must be softened with warm fomentations or poultices. The best local applications are the iodide of sulphur ointment and a saturated solution of sulphurous acid.

PLICA POLONICA.

A disease of the hair allied to the present class, but almost unknown in this country. It consists in an inflamed and tender state of the scalp, and a swollen condition of the hairs, which are glued together into a compact mass by a viscid and offensive secretion. Two parasitic plants—the *Tricophyton tonsurans* and *Tricophyton sporuloides*—are said to accompany it, and are thought to be the cause of it. Nothing is known of the proper treatment, but the disease seems to be aggravated by cutting the hair. Stimulants, such as the mixed vapor of iodine and sulphur appear to be the most hopeful means of cure.

FUNGUS FOOT OF INDIA.

SYNONYMS.—Madura foot. Podelkoma. Mycetoma. Ghootloo. Mahdeo. Kirudeo. Dr. H. V. Carter, of Bombay, has given a full description of this disease, and an elucidation of its cause, in the "Trans.

of the Medical and Physical Society of Bombay," 1860. The following is a brief summary of the principal facts:—

SYMPTOMS AND PATHOLOGY.—The disease appears as a flattened swelling of the integument, from which the cuticle is thrown off, leaving a white surface, which presents numerous pinkish spots, and on making sections of the cutis these are found to be the extremities of pink, red, or orange-brown streaks radiating through the corium. This deposit is composed of minute bright globules, measuring $\frac{1}{4000}$ to $\frac{1}{8000}$ of an inch in diameter. Occasionally spherical groups of spores are seen. After a time the whole foot becomes swollen, and grayish depressed spots appear, composed of a thin layer of cuticle, which finally breaks and discloses the orifice of channels, allowing the passage of a probe for a greater or less distance. Numerous depressions and circular apertures form over



Fig. 104.

b. A globular mass of the fungus, natural size. *a.* Another in section.

c. A fourth of *a* slightly magnified.

d. Spherical granules from outer surface of *b* magnified; *e* and *f*, beaded filaments and spores highly magnified.

the surface of the dorsum, sides, and heel of the foot; they are large enough to admit a pea or a shot, and numbers of small round granules like fish-roe or poppy-seeds are discharged with an ichorous offensive fluid from the orifices. The foot continues to enlarge, and becomes much misshapen. The surface is riddled with numerous round holes of various sizes, leading to canals and cavities which pervade all the textures of the foot, including the bones. The lower ends of the tibia and fibula are often excavated into numerous communicating cavities, some large enough to lodge a hazel nut. The sinuses and excavations are filled with mahogany-brown or pink granules. A section of the diseased foot presents great indistinctness of parts, the tissues being everywhere excavated, changed, and in places infiltrated with the colored granules.

The disease attains its maximum development in about four years. It may continue for twelve years. No acute pain attends its progress, but merely a deep-seated aching. The health suffers considerably, and the patient becomes emaciated and weak.

In one case the disease has been observed to attack the hand.

CAUSE.—The development of a fungus, named by Mr. Berkeley, *Chionyphe Carteri*. It occurs in globular masses, varying in size from a pin's head to that of a bullet (*a b c*, Fig. 104), friable and black upon the surface, where they present numbers of minute tubercles (*d*). Sections show a radiated arrangement (*a*). Minutely examined, they are found to be composed of radiating tubular fibres, which branch and unite towards the circumference (*c*). Near the surface they become beaded (*e*). Interspersed among these fibres are the spores (*f*). Dr. Carter believes that the fungus is introduced from without, the spores gaining admission through the orifices of the sweat ducts, or any slight abrasion of the



Fig. 105.

surface. The disease has occasionally followed a prick from a thorn. Farm laborers between the ages of 17 and 50, who go about with their feet uncovered, are most liable to its attacks.

DISTRIBUTION.—The disease is endemic in the Bombay and Madras Presidencies, and N. W. Provinces. "Kattiawar, Kutch, Gujerat, Sind, the Deccan, Lower Concan, are known localities in the Madras Presidency. On the Madras side, Guntoor, Bellary, Madura, and Cuddapah are well-known localities; parts of Mysore, and, it is said, Trichinopoly." (Carter.) "In the Dependencies of the Punjaub (N. W. Provinces), the greater number of cases come from Igepore and the Bicaner territories. It prevails also in the Bhuttuana, Harrianah and Bhawalpore districts." (Hon. Asst. Surgeon Peter A. Minas, to whom we are also indebted for the sketch from which Fig. 105, representing the disease in one of his patients, has been made.)

TREATMENT.—In the later stages, amputation of the foot is the only remedy. In the earlier ones, the application of a strong solution of corrosive sublimate or hyposulphite of soda.

NON-PARASITICAL SKIN DISEASES.

ORDER 1.

EXANTHEMATATA.—RASHES.

RUBELOA . . .	Measles (Vol. I., p. 297).
SCARLATINA . .	Scarlet Fever (Vol. I., p. 300).
ERYSIPELAS . .	St. Anthony's Fire (Vol. I., p. 255).
ERYTHEMA . . .	Inflammatory Blush.
URTICARIA . . .	Nettle-rash.
ROSEOLA . . .	Rose-rash.

ERYTHEMA.—INFLAMMATORY BLUSH.

SYMPTOMS.—Red patches of variable form and extent disappearing on pressure, with little or no swelling, heat, pain, or fever. Not contagious, nor dangerous.

VARIETIES.—1. *Erythema papulatum*, occurring in young persons of both sexes, on the trunk and upper extremities, in small, round, and slightly-prominent patches, which disappear entirely in the course of a few days.—2. *E. tuberculatum*, in which the patches are larger, more prominent, and more permanent.—3. *E. nodosum*, which occurs chiefly in children and young persons of both sexes, on the extremities, especially the fore-part of the leg, its form rounded or oval, its size varying from half an inch to an inch in diameter, at first slightly raised above the surface, but in a few days assuming the form of red, painful tumors, which disappear in a week or fortnight. It is generally preceded by debility.—4. *E. centrifugum*, appearing mostly on the cheek, as small round raised patches, which gradually spread from a small pimple till they cover a considerable surface.—5. *E. intertrigo*. The blush and irritation caused by prolonged contact or friction of two surfaces of skin.

TERMINATIONS.—In resolution with or without desquamation (*E. fugax* and *E. læve*); or in an offensive sero-purulent exudation.

CAUSES.—Friction and pressure; heat and cold; acrid discharges; as that of coryza; leucorrhœa, or gonorrhœa; unhealthy state of the urine and fæces; dentition; dyspepsia; tension of the skin as in anasarca.

DIAGNOSIS.—From *erysipelas*, by the redness being lighter and more superficial, and the swelling less; by the absence of heat and pain; and by its milder character and more favorable termination. From *roseola*, by the peculiar rosy tint of the latter. From *rubeola* and *scarlatina*, by the semilunar patches of the first, and the great extent and deep-red hue of the last. Also by their peculiar symptoms and contagious character.

PROGNOSIS.—Favorable.

TREATMENT.—When idiopathic, these blotches disappear without

treatment, or yield to gentle aperients, the warm bath, and tonics. If symptomatic, the treatment is that of the primary disease.

When Erythema nodosum occurs in women, the menstrual function is usually disordered, and chalybeate tonics are required.

URTICARIA—NETTLE-RASH.

VARIETIES.—1. *Urticaria evanida*. 2. *Urticaria febrilis*.

1. URTICARIA EVANIDA.

SYMPTOMS.—A eruption resembling in appearance, and in the intolerable smarting which attends it, the stinging of nettles. The spots often appear suddenly, especially if the skin be rubbed or scratched, and seldom last many hours, sometimes not many minutes, but vanish, to appear on another part. Sometimes the rash assumes the form of long wheals, like blows from a whip or cane. The swellings are always firm, and contain no liquid. In some persons the rash lasts only a few days, in others many months or years, appearing and disappearing at intervals, generally disappearing in the day, to return in the evening. It is accompanied by slight feverishness, and terminates in desquamation.

CAUSES.—*Predisposing*. Hepatic derangement.—*Exciting*. Handling the nettle; shell-fish; mushrooms; honey; vinegar; cucumbers; salad. Strawberries and several other fruits and articles of diet will cause it in certain persons; also valerian, turpentine, and copaiba. It almost invariably follows the first tapping of a hydatid cyst.

DIAGNOSIS.—By its close resemblance to the sting of the nettle, the itching that attends it, and its fugitive character.

PROGNOSIS.—It generally disappears under the use of simple remedies; but may last for months or years.

TREATMENT.—If caused by irritating food, an emetic, followed by an aperient. In chronic cases, warm or vapor, alkaline or sulphur baths; with a strictly regulated diet, aperients, and alteratives. In obstinate cases, Fowler's solution (Form. 292). The smarting may be allayed by lotions of acetate of lead, or cyanide of potassium, or by the warm bath.

2. URTICARIA FEBRILIS.

SYMPTOMS.—This is generally caused by some article of food which has disagreed with the patient. There is more or less fever or constitutional disturbance, followed by heat and tingling of the body; and then by an eruption, beginning on the shoulders, loins, and inner surface of arms and thighs, and round the knees, consisting of irregularly-shaped pale blotches, surrounded by a deep red border, but soon assuming an uniform deep red color, and attended by intense itching. The blotches appear and disappear several times, and gradually subside in a few days

or a week. There is generally an increase of itching and smarting towards evening. Sometimes there is much attendant erythema, and the face may be so swollen as to close the eyelids. Rarely the rash is of a deep venous tint. The *treatment* is that of Urticaria evanida, but more active. After an emetic of ipecacuanha, a saline aperient (Form. 242).

ROSEOLA.—ROSE-RASH.

SYMPTOMS.—Slight febrile symptoms, succeeded by deep red patches of various size and form, appearing on different parts of the body, and generally disappearing in one or two days, or a week.

VARIETIES.—1. *Roseola infantilis*. An eruption of numerous small, distinct, circular patches, of a deep rose-red color, occurring in infants from dentition or intestinal irritation. 2. *Roseola æstiva*. This form is most common in children and females. It is preceded by feverishness. The rash, which is of a deep red color, and attended with itching and pain, and sometimes with an inflamed throat, with some difficulty in swallowing, commonly appears between the third and seventh days on the face and neck, whence it rapidly spreads over the rest of the body, lasts about three or four days, and then disappears. 3. *Roseola autumnalis* is a less severe affection, occurring also chiefly in children, and presenting larger patches, seated mostly on the arms. 4. *Roseola annulata*, appearing, as the name implies, in rosy rings, inclosing healthy skin, and gradually spreading. The rash is most common on the belly, loins, buttocks, and thighs. It may be acute or chronic, and is generally dependent on some disorder of the alimentary canal.

CAUSES.—Teething; irritation of the stomach and bowels; drinking cold water when the body is heated; severe exercise. The disease is sometimes epidemic, spreading in schools and families, just as measles and scarlet fever do.

DIAGNOSIS.—From measles and scarlet fever, by the mildness of the constitutional symptoms, and the absence of the catarrhal symptoms of the one, and the sore throat of the other.

PROGNOSIS.—A favorable termination in a few days or a week.

TREATMENT.—Saline aperients, and diaphoretics two or three times a day; and an occasional warm bath.

ORDER II.

VESICULÆ.—VESICLES.

VARICELLA	Chicken-pox (Vol. I., p. 297).
ECZEMA	Running scall.
HERPES	Tetter.
MILIARIA	Miliary Fever.

ECZEMA.—HUMID TETTER.

SYNONYMS.—Running scall; crusta lactea.

SPECIES.—1. Acute. 2. Chronic. 3. Impetiginosum.

1. ACUTE ECZEMA.

SYMPTOMS.—An eruption of a punctated rose-rash spreading quickly and becoming confluent; about the third day, the formation of almost microscopical vesicles corresponding to the primary rash. There is distressing irritation from the first. The fluid in the vesicles soon becomes opaque and turbid, and in four or five days is discharged, and dries into thin yellowish-green scabs. Fresh vesicles form on the surrounding skin, while the parts already affected are kept moist by constant exudation. When the eruption is of some standing, the skin presents a highly inflamed surface, studded with numerous minute pores, covered with thin white membranes. Usual duration, from a week to a month.

VARIETIES.—*Eczema simplex*. A mild form, free from constitutional disturbance, mostly attacking women, and young children on the arms and hands, generally terminating in resolution. When it attacks the fingers and parts covered by thick cuticle, it is very distressing.—2. *Eczema rubrum*. The skin is inflamed, hot and tense, of a bright red color, and covered with small vesicles surrounded by an inflamed areola. The rash generally terminates in about a week in free desquamation; but in severe cases the inflammation increases, the vesicles coalesce, the contained serum becomes opaque, and at length escapes as an irritating fluid, which forms loose thin incrustations, and these falling off, display a highly inflamed surface. The disease either disappears in two or three weeks, the healing process beginning at the margins; or it becomes chronic.—3. *Eczema impetiginosum*. In this form, the inflammation, which is still more acute and rapid in its progress, is accompanied by much swelling and tension, and some fever; and the contents of the vesicles becoming purulent, dry into soft yellow scabs, which fall off, and are reproduced, displaying a red inflamed surface covered with an ichorous serum. It terminates within a month, or may run into the chronic form. It is scarcely distinguished from impetigo, which is a pustular disease from the beginning.

CAUSES.—*Predisposing*. The female sex; spring and autumn.—*Exciting*. Intense heat; blisters, mercurial frictions (*eczema mercuriale*); the handling of dry powders, flour, metals, etc.; dentition; intestinal irritation.

DIAGNOSIS.—An abundance of watery vesicles with tenderness and smarting distinguish eczema from scabies. *Miliaria* is accompanied by fever and profuse perspiration. *Lichen* is papular. *Psoriasis* is dry and scaly.

PROGNOSIS.—*Favorable*, but the disease is often difficult of cure.

TREATMENT.—The mineral acids given internally, cooling drinks, sim-

ple diet, warm baths, water-dressing, local baths of linseed, marsh-mallow or bran, or poultices of potato-flour. * The tingling and smarting may be relieved by decoction of poppy-heads, or by a lotion consisting of two grains of cyanide of potassium to an ounce of water. Alkaline lotions, and zinc or chalk applications are often of much service.

2. CHRONIC ECZEMA.

SYMPTOMS.—This is a sequel of the acute form, and often intractable. The skin, from the continued abundant discharge of acrid serum and the reproduction of the vesicles, is highly inflamed and marked by fissures at the joints. Sometimes there is but little moisture, and the surface is cracked and covered with shining crusts, beneath which the skin is of a bright-red color. The disease often spreads from a small point over a considerable extent of surface, and is accompanied by intense itching and smarting, which is particularly distressing when the eruption occupies the inner surface of the thighs, the verge of the anus, or the vulva. When it attacks the face, the conjunctiva of the eye is involved, and there is much smarting with some intolerance of light. The fingers and palm are also liable to this form; deep fissures run across the joints, both on the flexor and extensor sides, the parts are a little swollen and motion causes pain. The eruption often lasts for years, being heightened and renewed in spring and autumn; and sometimes, after the resources of art and the patience of the sufferer are exhausted, rapidly disappears.

TREATMENT.—Mineral acids with one of the bitter infusions; alkaline lotions externally; an alterative aperient at bed-time occasionally. In obstinate cases ℥iij. to ℥v. of liquor arsenicalis may be prescribed. The sulphur bath (Form. 43) may be used with advantage. The itching and smarting are best allayed by zinc ointment mixed with spirits of wine (ung. zinci ℥i., spt. vin. rect. 3 i.) smeared over the surface, and renewed once or twice a day; or by simple cold-water dressing. Vaseline is a very good remedy. A handkerchief, moistened with a teaspoonful of chloroform, placed near the seat of irritation, and covered with the bedclothes, often allays the smarting. A solution of nitrate of silver (ten grains to the ounce) will also sometimes afford great relief. (G.)

HERPES.—TETTER.

SYMPTOMS.—The rash begins as circumscribed groups of distinct vesicles on an inflamed base; but these soon coalesce, and their contents, which were at first watery, become yellowish white or yellow, escape, and form a firmly adherent scab, which on separating leaves an inflamed surface, very tender, and not very readily healed. The eruption is commonly preceded by slight constitutional symptoms, and sometimes by acute darting pain, which, when the rash appears, changes to heat and

smarting. The disease is rarely attended with danger, and generally lasts about a week or ten days.

VARIETIES.—1. *Herpes phlyctenodes*, that which has no particular seat.—2. *Herpes labialis*, that which affects the lips. It may extend to the nose, cheeks, and chin; and may attack the mucous membrane of the lips and mouth. It is a very common accompaniment of catarrh, and of inflammatory affections of the mucous membrane of the mouth, throat, and stomach; and it often appears during attacks of pneumonia, ague, and especially relapsing fever.—3. *Herpes preputialis* attacks the internal or external surface of the prepuce, and is preceded and accompanied by itching and smarting. It is easily distinguished from syphilis when recent, and afterwards by its history. If a sore form, it is superficial and readily heals.—4. *Herpes zoster, zona, or the shingles*, has a characteristic appearance, position, and course. As the name implies, it surrounds the body like a zone or girdle, beginning somewhere about the mesial line, and travelling round one-half the body, following the direction of the intercostal nerves, below the nipple, at the lower part of the back and groin, or at the upper part of the thigh. It is often preceded for days, or longer, by acute darting pains. It usually runs a mild course, and disappears in two or three weeks—but in some cases there is considerable ulceration of the integument, and tenderness may linger a long time in the cicatrix.—5. *Herpes iris*, a very rare variety, consisting of four rings of different shades of color.

CAUSES.—*Predisposing*. An east wind.—*Exciting*. Catarrh; inflammation of the mucous membranes; indigestion.

DIAGNOSIS.—From *pemphigus*, by the smaller size and greater number of the vesicles. From *eczema*, by their larger size, the raised inflammatory base, and usually by the smaller size of the patches.

TREATMENT.—Gentle aperients with antimonials, a regulated diet, and local applications of warm mucilaginous liquids.

MILIARIA.—MILIARY FEVER.

SYMPTOMS.—This disease sets in with rigors, extreme debility, depression, and a sense of tightness and oppression about the præcordia, with shortness of breath, and, in some instances, a teasing cough, followed by increased heat of surface, with wandering pains and restlessness. After these symptoms have continued from two to five or six days, a *profuse sweat*, of a sour, rank odor, breaks out, accompanied by a harassing pricking or itching of the skin. On an *uncertain day*, a number of small red or white papules, the size of millet-seeds, appear first on the neck and breast, whence they gradually extend to the trunk and extremities. After *ten or twelve hours*, a small vesicle forms on the top of each pimple; the contents are at first transparent, but become white; and

they have a peculiarly offensive odor. In *two or three days* the vesicles break, and are succeeded by small crusts. The disease terminates in resolution, or desquamation. The febrile symptoms do not subside on the appearance of the eruption, but after a variable interval.

I have seen but one case of this disease; as an endemic affection we have no knowledge of it in Britain.

CAUSES.—*Predisposing.* Childhood; old age; the female sex; the period of childbirth; debility; dyspepsia.—*Exciting.* Immoderate sweating.

DIAGNOSIS.—By the uncommon anxiety and dejection; the peculiarly foetid, rank odor of the profuse perspiration. Afterwards the characteristic eruption.

PROGNOSIS.—*Favorable.* The fever assuming a mild form, and remitting on the appearance of the eruption; the papulæ of a florid red color.—*Unfavorable.* Increase of fever; great anxiety and depression—coma; the sudden disappearance of the eruption followed by prostration.

TREATMENT.—A moderate temperature and tepid sponging. After an aloetic purge, sulphuric acid with bark or quinine. If there be much restlessness, opium.

ORDER III.

BULLÆ.—BLEBS.

PEMPHIGUS . . .	Vesicular Fever.
RUPIA	Atonic Ulcer.

PEMPHIGUS.—VESICULAR FEVER.

SYNONYMS.—Bullæ; phlyctena; pompholix; hydatis; febris bullosa.

SYMPTOMS.—The rash is ushered in by lassitude, headache, sickness, oppression, frequent pulse, and in some instances, delirium. On an *uncertain day* an eruption takes place of red circular patches, which soon terminate in pellucid blisters, similar to those produced by a burn, resting on an inflamed areola, and distended with a straw-colored serum. They appear on the face, neck, trunk, arms, mouth, and fauces, and measure half an inch or more in diameter. In a few days the blisters either break and discharge a yellowish, bland, or sharp ichorous fluid, or they begin to shrink, and in a short time disappear. Occasionally the fluid dries up into flakes like piecrust (*P. foliaceus*).

VARIETIES.—1. *P. infantilis* attacks young infants in lying-in hospitals. It has been mistaken for syphilis.—2. *P. solitarius* is characterized by the appearance of a single bleb at a time, at short intervals.—3. *P. diutinus* is a chronic disease, occurring, for the most part, in middle-aged and old men, lasting for a considerable time, and

sometimes extending over the entire body.—4. *P. gangrænosus*, the contents of the bullæ dark and foetid, leaving black gangrenous ulcers. It occurs in half-fed, overcrowded children.

CAUSES.—*Predisposing*. The male sex; adult and old age; summer season.—*Exciting*. Unwholesome and scanty food, bad ventilation, and all the causes of cachexia; especially syphilis.

DIAGNOSIS.—From *vesicular eruptions*, by the large size and isolation of the vesicles. From *rupia*, by the absence of thick scabs. From *ecthyma*, by the contents of the blebs being transparent. From *erysipelas*, by the regular form and isolated situation of the blisters.

PROGNOSIS.—*Favorable*, except in the 4th variety.

TREATMENT.—In mild cases, gentle aperients, with quinine, and acid drinks. If the patient be cachectic, alteratives with tonics or stimulants, and a generous diet.

The local treatment consists in puncturing the vesicles as they appear; and if there is much pain, the use of warm poppy fomentations.

RUPIA.—ATONIC ULCER.

SYNONYM.—Ulcus atonicum.

SYMPTOMS.—This disease consists in round, flattened and isolated blebs, about the size of a shilling, filled with serum, which changes after a time to pus. These blebs shrink, and become converted into thick brownish scabs, which, when they fall off, leave ulcers that either heal or continue open for a while. The disease attacks weakly and cachectic subjects, and runs a chronic course, lasting from a few weeks to several months. Its most common seat is the lower extremities.

VARIETIES.—1. *Rupia simplex* is the mildest form of the disease, and answers to the above description. 2. *Rupia prominens* is named from the greater thickness of the scabs, which are formed by several layers of hardened secretion, assume a conical shape, and an appearance not unlike that of an oyster shell in miniature. The blebs are larger, and the inflammation and subsequent ulceration more extensive than in *rupia simplex*. This form occurs chiefly in syphilitic subjects.—3. *Rupia escharotica* affects infants in the interval from birth to the first dentition, is accompanied by much constitutional disturbance, and sometimes terminates fatally. The ulcers left after the separation of the scabs heal slowly, secrete a foetid sanies, and are apt to spread.

CAUSES.—*Predisposing*. Debility.—*Exciting*. Syphilis.

DIAGNOSIS.—From *pemphigus*, by the thick laminated scab, the inflammatory areola, and subsequent ulceration. From *ecthyma*, by the blebs at first containing serum; but in severe cases, the secretions soon becoming purulent, render the diagnosis difficult.

PROGNOSIS.—*Favorable*, except in severe cases of *rupia escharotica*.

TREATMENT.—*Local.* Warm baths; emollient applications, and when the ulcers are obstinate, nitrate of silver, dilute mineral acids, or stimulating ointments.—*General.* Tonics or stimulants, with alteratives, according to the patient's state; and strict attention to diet, ventilation, and cleanliness:—the treatment, in a word, of cachexia.

ORDER IV.

PUSTULÆ.—PUSTULES.

VARIOLA . . .	Small-pox (Vol. I., p. 288).
VACCINA . . .	Cow-pox (Vol. I., p. 295).
ECTHYMA . . .	Ecthyma.
IMPETIGO . . .	Running Tetter.
ACNE . . .	Pimple.
SYCOSIS . . .	Simple Inflammation of the Hair Follicles.
EQUINIA . . .	Glanders (Vol. I., p. 320).
PUSTULA MALIGNA	Malignant Pustule (Vol. I., p. 322).

ECTHYMA.

SYMPTOMS.—The eruption begins as scattered, inflamed, circumscribed spots, which increase, and attain a considerable size. Pustules form on the centre, and sometimes enlarge till they closely resemble the bullæ of rupia. In two or three days the pustules dry up, and thick scabs form, which, falling off, leave a purple discoloration, or in severe cases, and in greatly impaired constitutions, an unhealthy ulcer. The eruption is sometimes accompanied by pain, and slight fever.

CAUSES.—*Predisposing.* Childhood and old age. *Exciting.* Cachexia.

DIAGNOSIS.—From *acne*, *impetigo*, *sycosis*, *favus*, and *scabies purulenta*, by the larger size of the pustules, and their inflamed and indurated base. From *variola*, by their size, the absence of the central depression, and their non-contagious character. From *vaccina*, by the cellular structure of the latter, and its contagious nature.

PROGNOSIS.—*Favorable*; but sometimes chronic and tedious.

TREATMENT.—Emollient applications, and, if the ulcers assume a chronic form, nitrate of silver, or the dilute nitric or muriatic acid, or stimulating ointments. Gentle aperients and alteratives, mineral tonics, wholesome food, pure air, exercise, cleanliness, and sea-bathing.

IMPETIGO—CRUSTED TETTER.

SYNONYMS.—Eczema impetiginosum. Crusta lactea. Running tetter; scale; cowrap.

SYMPTOMS.—The eruption appears as clusters of small pustules, slightly raised above the skin, bursting in from one to three days, and discharging a purulent fluid, that hardens into thick, yellow, semi-transparent incrustations, resting on an irregular, inflamed base, moistened by a sero-purulent fluid. The eruption may disappear in a few weeks, or it may continue for months or years, the existing patches being succeeded by fresh groups of pustules. There is some constitutional disturbance, with heat and itching of the parts affected.

VARIETIES.—1. *Impetigo figurata* generally occurs in defined patches on the cheeks, but may attack any part; it is most common in young children, during dentition.—2. *Impetigo sparsa* is more irregular in its distribution, and is most frequently seen on the extremities, and round the joints; it may be either acute or chronic.—3. *Impetigo larvalis* attacks the scalp, ears, and lips in infants. It also occurs on the cheek, which it covers with a thick, yellowish-white crust, resembling a mask, whence its name.

CAUSES.—*Predisposing.* Spring and autumn; infancy and childhood; the lymphatic temperament.—*Exciting.* Irritation of the skin; unwholesome diet; impure air; want of cleanliness.

DIAGNOSIS.—The formation of clusters of small, not contagious pustules (psudracia), succeeded by whitish-yellow or dark brown scabs. The pustules of *sycosis* are much smaller, and the exudation less. *Favus* is contagious, and the character of the crust distinct. (See Dermmycosis Favosa.)

PROGNOSIS.—*Favorable* in its acute, *obstinate* in its chronic form.

TREATMENT.—Emollient applications, tepid water, and gentle aperients. The troublesome itching may be relieved by zinc or lead lotions. In chronic impetigo, in addition to tepid baths, alkaline lotions to the skin; the sulphur bath; the dilute acids, or a weak solution of nitrate of silver.

ACNE.—COPPER NOSE.

SYMPTOMS.—This disease attacks the sebaceous follicles of the skin as isolated pustules, seated on a hard, red base, and terminating in indolent chronic tumors. Its primary form is, in most cases, a hard, red pimple. It is most commonly seen on the nose, cheeks, temples, and forehead, but frequently appears on the back and upper part of the chest, and sometimes on the neck and shoulders. It may exist in all these situations in the same person. It is a chronic disorder, not accompanied by constitutional symptoms; is most frequent from puberty to the age of thirty-five; and occurs in both sexes.

VARIETIES.—1. *Acne simplex* answers to the foregoing description, its most common seat being the shoulders and upper part of the chest; but it may occur on the face.—2. *Acne indurata* consists in the forma-

tion of large indurated tumors by the union of several of the smaller follicles. Its common seat is the face, but it often occupies the back of the trunk.—3. *Acne rosacea* is generally met with in old persons, chiefly on the nose and cheeks. As the name implies, the diseased parts have a rosy color, which, however, is not permanent, but changes at length to a violet. In extreme cases, the superficial veins enlarge, and the cellular tissue, to some depth, becomes inflamed and hardened (*acne indurata*).—4. *Acne punctata* derives its name from a small black speck, which occupies the summit of each pimple.—5. *Acne sebacea* is named from the smooth waxy appearance of the pimples.

DIAGNOSIS.—By its seat—the sebaceous follicles, the apertures of which occupy the centre of the pustules.

PROGNOSIS.—In *acne simplex*, favorable. It often disappears of itself with the advance of age. *Acne indurata* and *acne rosacea* often defy all modes of treatment.

CAUSES.—Hereditary predisposition; dyspepsia; excess in eating and drinking; uterine disorders; change of life.

TREATMENT.—In the young and vigorous, a restricted diet, and the avoidance of stimulating liquors; gentle aperients; lotions of acetate of lead. In chronic cases, and in *acne indurata*, the same general treatment. The use of frictions, with an ointment of iodide of sulphur (gr. xx. of the iodide to an ounce of lard), or a paste of sulphur and milk. Dilute acids, or the nitrate of silver, cautiously applied to the eruption, or a lotion of two grains of the cyanide of mercury to an ounce of distilled water, are also beneficial. This lotion should be applied with a camel's hair pencil, and after a short interval washed off with cold water. A course of alterative medicines may be given at the same time. A drop of creasote in a mucilaginous draught may also be given with advantage two or three times a day. *Acne rosacea* requires a very careful regulation of the diet, exercise, abstinence from stimulating liquors, avoidance of heated apartments, hot fires, and mental excitement, with the local application of the vapor douche, or the lotion of cyanide of mercury. (Form 91.) In very obstinate cases, blisters have sometimes been applied with advantage.

SYCOSIS.—SIMPLE INFLAMMATION OF THE HAIR FOLLICLES.

SYNONYM.—Folliculitis barbæ. Herpes pustulosus. Mentagra.

SYMPTOMS.—A chronic tubercular, tuberculo-pustular, or pustular disease of the hair follicles, commonly affecting those of the chin, or upper lip. In the early stage of the disease, the area surrounding the hairs becomes hard, red and swollen, and is soon raised into distinct pimples or tubercles, red, tender, and irritable. They may remain in this condition; or, as is more common, they pass into yellow pustules, the centre of each being occupied by a hair. In severe cases the inflammatory area

spreads so as to involve the whole of the skin, which is raised into tubercles studded with pustules. When suppuration is free, crusts are formed. The hairs are not affected by the disease, unless the suppuration extend deep enough to involve the bulbs, when they are loosened, but this rarely happens.

CAUSE.—Local irritation of the sebaceous follicles of the hair of the same nature as the inflammatory varieties of acne. Dyspepsia in strumous and syphilitic subjects appears to be the chief exciting cause.

DIAGNOSIS.—A tubercle or pustule, the centre of which is occupied by a hair. Absence of the *Microsporon mentagrophytes* (p. 264) and a healthy condition of the hairs.

PROGNOSIS.—It is a most inveterate disease.

TREATMENT.—If constitutional disease be present, and generally when the stomach will bear them, advantage will be derived from mineral tonics, and alteratives. (Forms 118, 289.) Alkalies and alkaline aperients are beneficial when there is acidity of the stomach, or defective secretion of bile. Locally, we must avoid all irritation. Tepid fomentations, occasional poultices, and the free use of lead and zinc lotions are beneficial.

ORDER V.

PAPULÆ.—PIMPLES.

LICHEN.

PRURIGO.

LICHEN

SYNONYMS.—Papulæ siccæ; scabies sicca vel agria.

SYMPTOMS.—An eruption of small, hard pimples, of the color of the skin, or red, generally arranged in clusters, and accompanied by severe itching. It is most common on the hands, forearms, neck and face, but may attack other parts. It is generally a chronic, but sometimes an acute disorder. It usually terminates in desquamation.

VARIETIES.—1. *Lichen simplex* answers to the above description.—2. *Lichen strophulosus*, commonly known as *red gum*, *white gum*, or *tooth-rash*, attacks children at the breast, or during dentition, is an acute affection, and generally continues for three or four weeks. It has received many names, according to the arrangement of the pimples, and the color of the skin.—3. *Lichen urticatus* is characterized by the large size of the papulæ and their close resemblance to the sting of nettles. In *lichen agrius*, the papulæ are confluent, and seated on a highly inflamed base; the pimples ulcerate and discharge a sero-purulent fluid, which dries into small scabs, and these, falling off, are replaced by thin scales. It is

accompanied by intense smarting pain.—4. *Lichen syphiliticus* is characterized by the coppery hue of the rash.

CAUSES.—*Predisposing*. The seasons of spring and summer.—*Exciting*. Extreme heat; irritants; abuse of alcohol; jaundice; disorders of the stomach and bowels; and in children, the irritation of teething, syphilis.

DIAGNOSIS.—By the papular form of the eruption, the severe itching, and its non-contagious character.

PROGNOSIS.—Troublesome, and sometimes difficult of cure.

TREATMENT.—In its acute forms, and especially in severe cases of lichen agrius, low diet, brisk aperients, the antiphlogistic regimen, and tepid emollient applications. Chronic cases require stimulating applications, such as a wash of carbonate of potash, ointments of iodide and biniodide of mercury, and sulphur and iodine vapor.

PRURIGO OR PRURITUS.—ITCHING RASH.

SYMPTOMS.—A chronic disease, in which the papulæ are of the color of the skin, larger than those of lichen, and accompanied by intolerable itching. It may occur on any part of the body, but is most common on the neck and shoulders. In some instances it attacks the external parts of generation in both sexes, or the margin of the anus. The papulæ are apt to be torn by friction, and to present on their summit a minute clot of blood, which gives to the rash a very characteristic appearance.

VARIETIES.—*Prurigo mitis* presents a smaller-sized pimple than, 2. *Prurigo formicans*, and is attended with less itching. In the latter disease, the itching is greatly increased by the warmth of bed.—3. *Prurigo senilis* is accompanied by great dryness of skin.

CAUSES.—*Predisposing*. Childhood and old age, and the seasons of spring and summer.—*Exciting*. All causes of debility, and cachexia; want of cleanliness; unwholesome food, privation, friction, irritation of the skin or of the mucous membranes.

DIAGNOSIS.—From *lichen*, by the larger size of the pimples, by the dark spot on their surface, and by the more severe itching.

PROGNOSIS.—Very difficult of cure, especially in aged persons.

TREATMENT.—Tepid or hot baths, and gentle aperients; lotions of lead and zinc with glycerin.

ORDER VI.

SQUAMÆ.—SCALES.

LEPRA, or PSORIASIS	Scaly Leprosy.
PELLAGRA	Italian Leprosy.
PITYRIASIS	Dandriff.
ICHTHYOSIS	Fish-skin.

LEPRA, or PSORIASIS.—SCALY LEPROSY.

SYNONYMS.—Dry Tetters; Kushta of the Hindoos; Baras of the Arabs

SYMPTOMS.—1. LEPRA.—The eruption begins in the form of small, red, round, shining spots, slightly raised above the skin, and soon becoming covered with a thin white scale, which, falling off, leaves the surface red and scaly. The spot increases in size, still retaining its circular form, raised at the circumference, and depressed towards the centre, with a peculiar shining, silvery appearance. These patches vary in size, from a quarter of an inch to an inch and a half. The knees and elbows are the parts commonly affected, but the disease may appear on any part of the body. The spots are often arranged symmetrically on the upper and lower extremities. In cases of long-standing, several of the original spots coalesce, and form large scaly patches of a very irregular shape, and the sensibility of the skin is destroyed.

2. PSORIASIS.—Is the confluent and more chronic form. The patches are irregular, often of considerable size, slightly raised above the surface, fissured, and covered with a white scale. There is some itching, especially at night, but no marked constitutional disturbance. The backs and palms of the hands, and nails are often severely affected; Psoriasis palmaris (grocers' and bakers' itch) and Psoriasis dorsalis (affecting washerwomen) are familiar forms.

SUB-VARIETIES.—1. *L. alphoides* is characterized by the small size of the patches, and the silvery appearance of the scales.—2. *L. nigricans* is a rare disease, distinguished chiefly by its darker color.—3. *L. guttata* generally attacks adults in the form of small, round, red patches, often blended with the other forms.—4. *P. diffusa* is more irregular in shape and size. The patches are often extensive, marked by large fissures, and commonly situated on the limbs.—5. *P. inveterata* is a very severe form of the disease, and generally occurs in the aged and weakly. The skin becomes hard, thickened, and covered with a shining scale, which, when removed, leaves a red, fissured, painful, and bleeding surface.—6. *P. gyrata* occurs in spiral-shaped stripes, generally on the back. It is very rare.

CAUSES.—*Predisposing*. Syphilis; autumn; adult age.—*Exciting*. Syphilis, acquired or inherited.

DIAGNOSIS.—From *favus*, *impetigo*, and *eczema*, by the total absence of moisture, and by its *scaly* nature. The pustular and vesicular forms produce *scabs*.

PROGNOSIS.—The disease is essentially chronic, obstinate, and difficult of cure, and disappears and returns without obvious cause.

TREATMENT.—After a short course of mild aperients, and strict regulation of diet,—alterative medicines, such as Plummer's pill, or the fifth of a grain of the biniodide of mercury, with the external application of

tar ointment, or of the mixed vapor of iodine and sulphur. In Psoriasis inveterata, preparations of arsenic, iodine, and mercury. (In Psoriasis inveterata attacking delicate anæmic females, *Liquoris arsenicalis* ℥v., *Tr. ferri perchloridi* ℥xx., *Infus. quassiae* ℥i., is a good combination. The itching and smarting are sometimes greatly relieved by a lotion consisting of ten grains of cyanide of potassium in six ounces of almond emulsion.) (G.)

PELLAGRA.—ITALIAN LEPROSY.

SYMPTOMS.—This disease is allied to psoriasis. It sets in in the spring of the year with dusky red shining patches on the feet and back of the hands, which gradually spread, become studded with tubercles, and covered with dry scales, intersected, as in psoriasis, by cracks and excoriations. The rash is accompanied by slight itching. It subsides and disappears towards autumn, returning the following spring in a more severe form, accompanied by anxiety, depression of spirits, and convulsive seizures. Towards the end of autumn the disease again subsides, but less completely, and reappears early the following year; and now extends to every part of the surface, the skin being dry, tough, and shrivelled like that of a mummy. Extreme debility, diarrhoea succeeded by dysentery, dropsy, and epilepsy, follow each other, and wear the patient away, or usher in dementia or mania.

DISTRIBUTION.—The north of Italy, where one-sixth of the people are affected. The south of France; parts of Spain; and Corfu.

CAUSES.—Obscure. 90 per cent are poor peasants.

TREATMENT.—The disease is believed to be incurable, and requires the persevering use of the remedies prescribed for psoriasis.

PITYRIASIS.—DANDRIF.

SYNONYM.—Eczema squamosum.

DEFINITION.—Non-contagious desquamation of the cuticle.

VARIETIES.—*P. simplex*; *P. rubra*; *P. sebacea*.

SYMPTOMS.—1. In *P. simplex* the disease consists in an abundant desquamation of the cuticle in the form of branny scales, which are constantly renewed. The subjacent skin is usually red and itchy. The scalp is the commonest seat of the disease. It prefers the hairy parts, but is met with in every other situation. The itching of the skin is slight in some cases, severe in others. There is no constitutional disturbance.

Pityriasis capitis occurs in all ages, and often in new-born infants; is attended by slight itching; and friction detaches white branny scales. *Pityriasis nigra* is known by the black color of the skin.

2. *P. rubra* is a more severe and general affection. The whole surface of the body is usually affected, the skin is red and dry, and the cuti-

cle is very rapidly formed, and as rapidly shed in the form of large dry white branny scales or plates. The desquamation is enormous, as in scarlatina, the thick cuticle of the hands and feet sometimes separating as a glove. The affection may be acute or chronic; and the hyperæmia of the skin varies from a bright vermilion tint to a natural blush. In this variety, there is also very little constitutional disturbance, and the cutaneous irritation is comparatively trifling.

P. sebacea. This variety is described in modern works on skin disease under the names of *Seborrhœa sicca* and *S. squamosa*. It consists of superfluous exudation of the sebaceous glands forming a dirty white or yellowish scurf, such as is commonly seen on the scalp of persons who seldom wash the head. On parts not covered by the hair the exuviation forms a fine mealy looking but greasy powder. Sometimes the whole surface of the body is affected, great accumulation of the secretion forms under the nails, and the patient actually "lards the way as he goes" by the constant shedding of the fatty scurf.

CAUSES.—*Predisposing.* Youth and old age; female sex; debility.—*Exciting.* Irritation of the skin by heat, by the strong rays of the sun, or by chemical or mechanical irritants.

DIAGNOSIS.—Distinguished from the contagious diseases by the absence of fungi.

PROGNOSIS.—Generally obstinate and difficult of cure.

TREATMENT.—Cleanliness; tepid baths; and tonic and alterative medicines. Alkaline and lead lotions, ointment containing zinc, lead, or nitrate of mercury, and sulphurous baths. The itching may be allayed by lotions containing prussic acid.

ICHTHYOSIS.—FISH SKIN.

SYMPTOMS.—The whole body, or certain parts only, especially the palms of the hands, soles of the feet, face, eyelids, outer surface of the limbs, and the joints, are covered by a number of small, hard, thick, dry, dark brown rhomboidal scales, resembling somewhat the scales of a fish. The rash often has a very disagreeable odor, and is not accompanied by inflammation, pain, or itching of the skin.

CAUSES.—The disease is congenital.

TREATMENT.—No treatment can be expected to remove the disease, but warm baths and other appropriate remedies may be used to keep the skin soft and comfortable.

ORDER VII.

TUBERCULÆ.

LEPRA ARABUM	Leprosy.
FRAMBESIA	The Yaws.
MOLLUSCUM	Molluscum.
CHELOIDEA	Keloid.
MALUM ALEPPORUM . .	Aleppo Button.
MORPHŒA.	
ELEPHANTIASIS ARABUM .	Elephantiasis.
DELHI BOIL or MOOLTAN SORE.	

LEPRA ARABUM.—LEPROSY.

SYNONYMS.—Elephantiasis Græcorum. Lepra Egyptiaca. Lepra Hebræorum.

VARIETIES.—*L. tuberculosa*. *L. anæsthetica*.

SYMPTOMS.—1. *L. tuberculosa* commonly sets in with erythematous shining patches, upon which an eruption of soft, livid tumors, of variable size, and irregular shape, makes its appearance. The vivid color subsequently fades, and the skin becomes tawny, thickened, and tubercular. The areolar tissue often becomes hypertrophied, and the parts affected ultimately attain an enormous size. The sensibility of the skin is heightened at first, but subsequently diminished. In very severe cases the tubercles become inflamed and ulcerated, and discharge an offensive sanies, which concretes into black scabs. When the fingers and toes are affected, the bones may be destroyed in the process of ulceration. The constitutional symptoms are merely such as result from the prolonged sufferings of the patient. The disease may occur on any part, but is most common on the legs and face.

2. *L. anæsthetica*. Burning and pricking sensations usually precede this form; erythematous patches and large bullæ then appear, and result in circular spaces of a tawny brown color, of a lighter shade than the skin in the dark races; the edges are raised and wrinkled or cracked, the centre depressed, pale, dry, glistening, and insensible. They are usually seated on the extremities, whence they gradually extend to the trunk. As the disease advances, the fingers and toes become shining, slightly swollen and stiff. The soles and palms present deep ragged furrows; ulcers form on the joints of the fingers and toes in the line of flexion; and enlarge by sphacelation until these members drop off. The lobes of the ears, and the alæ of the nose become thickened, and then ulcerated. The voice becomes hoarse from ulceration of the throat; and after some years during which these processes have been going on, diarrhœa, or

dysentery supervenes, and hastens the fatal result. (Morehead, "Diseases of India.")

PATHOLOGY.—The invasion of the fibrous element of the skin, the areolar tissue, and the cutaneous nerves by minute rounded corpuscles and molecular matter.

CAUSES.—Unknown. It is propagated by hereditary taint, and contact.

PROGNOSIS.—Generally unfavorable.

TREATMENT.—Stimulating applications externally and arsenical preparations or cantharides internally, in combination with tonic infusions. Nourishing food.

FRAMBOESIA.—THE YAWS.

SYMPTOMS.—This disease appears without marked premonitory symptoms, in the form of clusters, of variable size and shape, of small dark red spots resembling flea bites. On these spots papulæ are developed, which degenerate into indolent vegetations, firm, slightly inflamed, covered with thin dry scales, and resembling, when found in circular groups, raspberries or mulberries. In some instances they become the seat of ulceration; and of a yellow or bloody discharge, which concretes into scabs. The surrounding skin is generally indurated.

CAUSES.—*Predisposing.* The climate of the West Indies, and of parts of America and Africa; scrofula. It is very rare among the white population.—*Exciting.* Contagion.

DIAGNOSIS.—By the peculiar appearance of the eruption.

PROGNOSIS.—Generally favorable. It sometimes assumes a chronic form, and continues for years.

TREATMENT.—The local application of stimulants, such as the red oxide, or yellow iodide of mercury; caustic, or the actual cautery. Internally, tonics and alteratives, and mercurial preparations in small doses; and in chronic cases, the preparations of arsenic. Warm and vapor baths.

MOLLUSCUM.

DESCRIPTION.—Numerous indolent tubercles, from the size of a pea to that of a pigeon's egg, of various forms, sessile or pedunculated, of the natural color of the skin, containing a little sebaceous matter unaccompanied by any constitutional disorder, and not attended by pain, inflammation, or ulceration. They present a central depression, leading to an orifice, which is closed with a plug of discolored sebaceous or albuminous matter. After the removal of this, a coarse needle may be passed down the tumor to some distance within the skin.

PATHOLOGY.—Morbid alteration of the hair follicles and sebaceous glands resulting in hypertrophy of one or the other.

CAUSES.—Obscure. One form of the disease is contagious.

TREATMENT.—If there be an accumulation of sebaceous matter, empty the little tumors and apply strong solutions (gr. v. to 3i.) of sulphate of copper and nitrate of silver.

CHELOIDEA—KELOID.

SYNONYM.—Cancroide.

DESCRIPTION.—This is a rare disease, appearing as hard, indolent tubercles, varying in dimension from a few lines to a few inches, generally isolated, but sometimes in groups, with intervals of sound skin. They are of an irregular oval, square, or angular shape, of a rose or red color, with a depressed centre, covered with a thin layer of wrinkled cuticle. Radiations, having a remote resemblance to a crab's claw, invade the surrounding skin, after a time undergo contraction, and then cause the characteristic puckered or cicatrized appearance of the skin. The usual situation of these tumors is the space between the mammæ. They are generally chronic, and unattended with danger.

DIAGNOSIS.—By the peculiar appearance above described.

TREATMENT.—The local application of the vapors of sulphur, iodine, or mercury; of plasters containing iodine, or iodine and opium; and alkaline baths.

The disease advances slowly, and is unattended with danger. The tumors rarely ulcerate; they are generally chronic, but occasionally they disappear spontaneously, leaving a white mark like a scar.

MORPHŒA.

DESCRIPTION.—An alteration of the skin in patches sometimes as much as four inches in diameter, due to a marble or wax-like condensation, resulting in atrophy of blood-vessels and nerves, and the formation of dense polished, white, insensitive areas bordered by a delicate ring of small blood-vessels. When very wax-like it is called *M. alba*, when pigmented *M. nigra*. It is occasionally raised; more commonly depressed. In the subsequent course of the disease, the part usually becomes shrunken and atrophied, leading to retraction of the surrounding skin. It may disappear entirely after some years, or it may pass into *scleroderma* or fibroid hypertrophy of the skin; a condition undistinguishable anatomically from Elephantiasis Arabum.

ELEPHANTIASIS ARABUM.—ELEPHANTIASIS.

SYNONYMS.—Bucnemia. Barbadoes or Cochin leg. Egyptian sarcocele.

SYMPTOMS.—The disease usually begins with rigor and pyrexia, is followed by local inflammation of the lymphatics and the nearest glands, and sometimes of the veins. The part attacked becomes swollen and red, the vessels leading from it are hard and tender, and there is burning heat. The general and local symptoms, except swelling, disappear after a few days, but recur again and again after irregular intervals. The part undergoes a gradual increase of size, until it attains an enormous bulk. The skin now has a pale yellowish or livid color, is often scaly, rough, or fissured and covered with soft vegetations or horny excrescences, and more rarely ulcerated. In advanced stages deep-seated suppuration, with offensive discharge and sphacelus may take place in different parts of the mass, or in the enlarged lymphatic glands: sometimes a milky coagulable lymph oozes in great quantities from the warty excrescences of the skin (Morehead). The extremities—the lower more frequently than the upper, the scrotum, labia, pudendi, and mammæ are the parts usually affected.

PATHOLOGY.—Inflammation and hypertrophy of the lymphatic vessels and glands, and of the integument. The disease is non-contagious.

CAUSE.—The disease is prevalent in low, damp localities near the coast in the East and West Indies, Japan, Cochin China, Malabar, Egypt, Abyssinia, Brazil, and Polynesia.

PROGNOSIS.—In the majority of cases the disease becomes chronic, and is compatible with a long life; but when the health is interfered with by suppuration, the patient often succumbs.

TREATMENT.—That of pyrexia and local inflammation in the early stages. Friction and compression in the later, and amputation when the disease becomes a chronic burden.

MALUM ALEPPORUM.—ALEPPO BUTTON.

SYNONYMS.—Biskra button. Sahara chancre. Caneotica (Crete).

LOCALITIES.—East and West Indies, Tropical part of Africa, Arabia, Persia, Syria, Crete.

DEFINITION.—A tubercular disease of the skin which prevails endemically at Bagdad, in several towns on the banks of the Tigris and Euphrates, and particularly at Aleppo and Bussorah. Also in Morocco and Algeria.

SYMPTOMS.—The eruption of one or more tubercles varying in size. At first the tubercle is merely a lenticular eminence, which during the next four or five months gradually increases without local or general

symptoms. Acute pain now sets in, followed by deep fissured and irregular ulceration, discharging a thick, ill-conditioned matter. After five or six months, a dry tenacious scab is formed, which shrivels and separates in one or two months, leaving a deep indelible scar. It attacks persons of all ages, sexes, and conditions of life. Children are attacked about the age of two or three; and at Aleppo, according to Mr. Guilhon, scarcely a single adult escapes. Dogs are also liable to it.

CAUSE.—Attributed at Aleppo to the use of water from a particular stream. A healthy constitution affords no protection. The disease is rarely complicated with scrofula; is not contagious; nor is it dangerous. There is no specific plan of treatment known. The following is a very similar, if it be not an identical affection.

DELHI BOIL.

SYNONYMS.—Lahore and Scinde boils. Mooltan Sore.

LOCALITY.—Lahore, Scinde, Mooltan, Agra, Meerut, Roorkee, Umballa.

DESCRIPTION.—At first it resembles a mosquito bite, the light red spot increases in size, and becomes elevated above the surrounding skin. During the next two or three weeks it attains the size of a pea and is usually movable under the skin. During its subsequent growth it becomes vascular, fixed, the seat of a prickling, itching sensation, and the little tumor now spreads at the base. The summit of the tubercle has a shining transparent appearance, and with a lens one or two yellowish spots may be seen deeply seated in the tumor. A vesicle forms at the apex and discharges pale yellow serum. Ulceration now begins and spreads rapidly and centrifugally, first destroying the whole growth, and then invading, and more or less completely destroying, the neighboring parts to the extent of one or two inches; healing then ensues, and a broad shallow unpuckered cicatrix remains. The parts affected are the extremities and the face. Dogs get the boil on the smooth skin of the nose. (J. Fleming, "Army Med. Rep.," 1868, p. 319.)

CAUSE.—Doubtless the deposit of ova or some irritant matter in the skin, by an insect, for the history corresponds to that of the parasitic tumors formed under the skin of the horse and cow by a species of botfly. So far, however, no positive evidence of parasitism has been adduced, the nature of the egg-like bodies described by Surgeon-Major Smith, in the volume above quoted, being very doubtful. Dr. Vandyke Carter attributes it ("Med. Chir. Trans.," vol. lix.) to a fungus, and terms the affection "*mycosis cutis chronica*."

TREATMENT.—That of an ordinary boil.

SCLEREMA.

SYNONYMS.—Scleriasis, Scleroderma, Xeroderma.

DEFINITION.—An induration of subcutaneous connective tissue, sooner or later, and in some degree involving the derm and epiderm, and causing proportionate alteration of structure and disturbance of function.

The affections which come under this definition may perhaps be formed into three classes.¹

1. SIMPLE SCLEREMA, in which there is induration without hypertrophy. In this class may be placed—(a.) *simple atrophic sclerema*, marked by the gradual disappearance of blood-vessels and shrinking of the connective tissue, so as to attach the skin more or less completely to the underlying parts. It may be *general*; *local*, affecting only the fingers and palm, or as the so-called Addison's Keloid; or *scattered*, which will include morphœa, and many other cases of partial sclerema; (b.) *Œdematous sclerema*, such as occurs in children (scleroderma neonatorum), in chlorotic girls, and the condition which Sir W. Gull has called adult cretinism, and Dr. Ord myxœdema; (c.) *Inflammatory sclerema*, such as may follow the application of a blister, or erysipelas; (d.) *Traumatic*, such as follows injuries, variolous and syphilitic diseases, burns, the use of the "cat," etc.

2. IDIOPATHIC HYPERTROPHIC SCLEREMA.

3. SPECIFIC HYPERTROPHIC SCLEREMA, which includes the following:—

(a.) *Syphilitic hypertrophies* and *condylomata*; (b.) *Elephantiasis*; (c.) *Lepra arabum*; (d.) *Molluscum*; (e.) *Keloid*—the tubercular as distinguished from the cicatricial form.

ORDER VIII.

MACULÆ.—SPOTS.

The diseases belonging to this order are of little practical importance. They consist either in change of color (*colorationes*) or loss of color (*decolorationes*). To the former belong the common freckle (*lentigo*) and (*ephelis*), the mole (*spilus*), purpura, petechiæ, bruises, and the several forms of *nævus*; to the latter a universal colorless state of the skin (*albinismus*), and a partial absence of color (*vitiligo*).

¹ "Medico-Chir. Trans.," vol. lix., p. 149.

OTHER DISEASES OF THE SKIN.

LUPUS.—THE WOLF.

SYNONYMS.—*Lupus vorax*; *Herpes exedens*; *Formica corrosiva*.

SYMPTOMS.—1. The *superficial* form of lupus consists in the formation of slightly raised erythematous patches, limited by rounded borders. The cuticle tends to exfoliate, leaving the skin red, shining, and tender to the touch, and bearing a close resemblance to the recent scar of a superficial burn. The redness disappears on pressure. When the disease is arrested, it leaves the skin thin and shining, and as if seared by a hot iron. In some cases the sebaceous follicles are involved, and the reddened patch of skin becomes crusted, puckered, tuberculated by the raised orifices of the enlarged sebaceous follicles, and greasy. This form has been termed *seborrhœa congestiva* by Hebra, and *Lupus erythematosus* by Cazenave.

2. The *deep-seated* form of the disease generally attacks the alæ of the nose, and is often preceded by redness, swelling, pain, and mucous discharge from the nostrils. The skin first swells and assumes a violet-red color. After an interval, a small ulcer forms covered by a scab, beneath which a gradual destruction takes place, first of the skin, then of the cartilages. In extreme cases, the whole nose, and even the palate and gums are destroyed; but in some instances the disease lasts for years without occasioning any great amount of destruction.

3. The *tubercular* form consists in numerous small, soft, red tubercles which remain stationary for a few weeks, months, or years, and then suddenly become inflamed and enlarged; their bases unite, and their summits ulcerate, forming an irregular spreading ulcer, covered by a dark tough crust. The parts first attacked sometimes partially heal, leaving irregular scars, which become the seat of fresh tubercles and renewed ulceration. Its usual seat is the cheek, but it may occur on the neck and chest, and on the anterior surface of the extremities.

4. *Lupus with hypertrophy* is generally confined to the face, and consists in the formation of numerous soft, indolent tumors, which rarely ulcerate, but enlarge at their bases, and the skin and cellular tissue become hypertrophied. The entire face, in this manner, sometimes attains an enormous size, and is hideously disfigured.

These forms may exist together, leading to the destruction of the nose, eyelids, and lips, and producing frightful deformity. They are rarely accompanied by any marked constitutional symptoms.

CAUSES.—*Predisposing*. The scrofulous constitution.—*Exciting*. Syphilis.

DIAGNOSIS.—From *acne*, by the absence of pustules. From *tubercular lepra*, by the insensibility of the skin, and the peculiar fawn color

of the tubercles in this latter disease. From *epithelioma* by the latter beginning in a single point, surrounded by a hard, circumscribed base, and subsequently by severe darting pains.

PROGNOSIS.—*Favorable*, when recent and limited.—*Unfavorable*, when chronic and extensive.

TREATMENT.—When the ulceration has not set in, friction with ointments of the iodides of sulphur and mercury. When ulceration has begun, nitrate of silver, chloride of antimony, and the nitrate or iodides of mercury. Alteratives, such as iodide of potassium and mercury, should be given for a considerable time and resumed after short intervals.

FURUNCULUS.—BOIL.

SYMPTOMS.—Boils consist of hard, circumscribed, dark red tumors of the areolar tissue, attended by troublesome itching and smarting, sometimes terminating in resolution, but more frequently passing into suppuration and the slow discharge of matter by a single orifice, or by several small openings. The boils follow each other in quick succession, and may continue to harass the patient for weeks together. They usually appear on the neck, back, and nates. There is but slight constitutional disturbance.

Carbuncles are boils of larger size and more marked character, and are attended by extensive sloughing of the cellular membrane.

CAUSES.—*Predisposing*. Debility, cachexia, and old age.—*Exciting*. Obscure. The mortality from carbuncles in the Metropolis rose from 1, 2, 3, or 4 per million, per annum, from 1840 to 1846, to from 7 to 36 per million, per annum, in the interval between 1847 and 1854.

DIAGNOSIS.—From *phlegmon*, by the round circumscribed form.

PROGNOSIS.—Boils are often tedious, but rarely fatal; but carbuncle, especially in aged persons, is often attended with great danger.

TREATMENT.—In mild cases, saline aperients, and poultices to the boils. In more severe cases, free incision and then poultices. In carbuncles, free crucial incisions, followed by poultices, and a generous diet, with wine and stimulants. In lingering cases, a course of alterative tonics (see Form. 147, 150, and 294). In most cases of carbuncle we may give bark and ammonia at the outset. Subsequently, quinine and acids.

ALOPECIA.—BALDNESS.

A parasitical form of the disease has been already described (p. 261). The variety now under consideration is dependent upon simple atrophy of the hair bulbs from defective nutrition. The disease may be

limited (*A. circumscripta seu areata*) or it may involve the whole of the head, and then the scalp and eyebrows present an ivory-like smoothness and polish. This is almost invariably the index of complete loss of hair from every part of the body. The general affection is usually attributable to two causes—viz., fever, especially occurring in the puerperal state, and syphilis. A general tonic treatment will be required, and locally cantharidine stimulants are beneficial in the regeneration of the hair.

DISORDERS OF THE SWEAT GLANDS.

Apart from the general derangements of the sudatory function treated of in various parts of this work, there remain for consideration the following: 1. Excessive local perspiration; 2. Bloody-Sweat; and 3. Metallic Sweat.

1. *Excessive Local Sweating*.—This is very obscure and troublesome. The hands and feet are the parts commonly affected. It is usually a chronic and sometimes an hereditary disorder, and is commonly associated with inherent debility of constitution. When the feet are affected they become tender and chafed. The *Treatment* consists in the frequent use of acid baths (Form. 39) and infrictions of belladonna liniment to contract the dilated blood-vessels. Chalybeate astringents, and other means for improving the health should be simultaneously adopted.

2. *Bloody Sweat* consists in the exudation of very dilute blood from the orifices of the sweat ducts, and is due to special hyperæmia of the sudoriparous glands. It is very rare, and is commonly referable to a vicarious endeavor to supply an imperfect menstrual effort. The treatment in such cases obviously consists in the restoration of the uterine function.

3. *Blue Sweat*.—Dr. Clapton has called attention to this phenomenon in cases of mild and chronic copper poisoning (*Med. Times and Gaz.*, 1868). The observation is an important one, as showing the eliminative power of the skin, and pointing to a means by which we may hope to remove other and more deleterious metals from the system.

The affections of the skin which characterize secondary syphilis have been briefly described under Syphilis, page 223.

CHAPTER IX.

PARASITIC ANIMALS.

1. Intestinal Worms.
2. Other Parasitical Animals.

INTESTINAL WORMS.

1. TRICHOCEPHALUS DISPAR Long Thread-worm.
2. ASCARIS LUMBRICOIDES Round Worm.
3. ASCARIS VERMICULARIS Thread-worm.
4. ANKYLOSTOMUM DUODENALE
5. TRICHINA SPIRALIS Trichina.
6. TÆNIA Tape-worm.
7. BOTHRIOCEPHALUS LATUS Broad Tape-worm.
8. DISTOMUM HEPATICUM Liver Fluke.

TRICHOCEPHALUS DISPAR.—LONG THREAD-WORM.

SYNONYM.—Trichuris.

DESCRIPTION AND LOCALITY.—This species is distinguished from the common thread-worm by its greater length, the extreme tenuity of the anterior two-thirds, and the increased size of the posterior third of the body. Also, in the case of the male, by the peculiar form of the



Fig. 106.

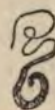


Fig. 107.

spiculum and sheath, shown greatly magnified at *b* (Fig. 106). The posterior part of the body is commonly found coiled up as in Fig. 107, which shows the worm in its natural size. These little worms vary from an inch and a half to two inches in length. The males are shorter and more slender than the females. The eggs are oval. The parasite has been observed in Egypt, Ethiopia, France, and England. In this country

it is rare—I have only met with it once—but in France it is very common. According to M. Davaine, not less than one-half the inhabitants of Paris are affected by this entozoon. It inhabits the large intestine, and chiefly the cæcum.

The treatment is that of the common thread-worm; but injections are less necessary.

ASCARIS LUMBRICOIDES.—ROUND WORM.

SYMPTOMS.—These vary with the number of the worms and the part of the alimentary canal which they occupy; sometimes there is only one worm. The usual symptoms are an uneasy sensation in the abdomen, sometimes amounting to actual pain, and often described as a biting or gnawing; an irregular state of bowels; dysuria; a variable and sometimes excessive appetite; foetid breath, furred tongue, and grinding of the teeth in sleep. In young children the constitutional symptoms often amount to those of infantile remittent fever (see Vol. I., p. 312). In most cases the general health does not suffer in any marked degree.

DESCRIPTION.—A smooth, grayish, round worm as thick as a goose quill, and varying from half a foot, to a foot in length.

The annexed woodcut, *a*, shows a specimen of this worm of moderate size; the head, *b*, is magnified about fourfold. It is terminated by three papillæ, which can be spread out into a broad circular sucker.

The posterior extremity of the female (Fig. 108) is slender and pointed. That of the male is curved.

The fecundity of this entozoon is prodigious. Eschricht calculates that the body of the mature female contains at one time as many as 64 millions of eggs.

They usually occupy the ^{small} ~~same~~ intestine, but are found both in the stomach and large intestine; occasionally they make their way into the gall-bladder and bile ducts, and have sometimes caused abscess of the liver.

CAUSES.—*Predisposing.* Childhood. *Exciting.*—The ova introduced into the alimentary canal, probably with unripe fruit, raw vegetables, or with impure water.

TREATMENT.—The parasite is readily expelled by irritant purgatives, such as the Pulvis scammonii compositus. Santonica, or, better, crystallized santonin, is a specific against this entozoon. Santonin is not a purgative, and therefore it may be given to the most delicate children. The dose varies from gr. i. to gr. vi. It may be given at bedtime, and followed next morning by a purge, such as gr. x. to gr. xv. of Pulvis scammonii compositus, or the purgative may be combined with the anthelmintic. (Form. 285.)

Cowhage (the hairs of the pod of *Dolichos pruriens*) is a good

remedy. (Form. 283.) This dose may be given two or three nights in succession, its use being preceded and followed by an aperient.

ASCARIS VERMICULARIS.—THREAD WORM.

SYNONYMS.—*Oxyuris vermicularis*. *Ascarides*. Maw-worm.

SYMPTOMS.—This worm infests the rectum in considerable numbers,



Fig. 108.



Fig. 109.

Fig. 110.

and causes great irritation at the orifice. In consequence of their small size they crawl out of the rectum into the vagina, and cause irritation and

leucorrhœa. In adult males, they are among the causes of spermatorrhœa. The constitutional symptoms are those described under *Ascaris lumbricoides*.

DIAGNOSIS.—An active little worm, like a bit of white thread, half an inch long. Fig. 110 represents the female eight times the natural size. Fig. 109 still more highly magnified; *d*, stomach; *e*, œsophagus; *g*, anus; *h*, ovaries; *k*, oviduct. They are often found massed together into large round balls. The male is disproportionately small; both extremities are rounded and obtuse, and it has a pale silvery-gray color. The females, which are much more numerous, are distinguished by their thickness and whiteness, and by the fine pointed tail.

MODE OF INTRODUCTION.—Nothing is certainly known respecting the habitat of the parasite out of the body. It is supposed to be conveyed into the intestines in the embryonic condition by means of salads and unripe fruits.

PROGNOSIS.—These worms are easily removed by remedies; but from their large numbers and rapid production, it is not easy to insure their complete expulsion. New broods are rapidly developed.

TREATMENT.—Injections are the most appropriate remedies. $\frac{3}{4}$ iv. to $\frac{3}{4}$ vi. Liquoris calcis, or the same quantity of *Infusum anthemidis*, or *Infusum quassiae*, thrown into the rectum, are efficacious remedies. The worms are, however, discharged in considerable numbers by the use of aperients. (Form. 255, 258.)

ANKYLOSTOMUM DUODENALE.

SYNONYMS.—*Dochmius*, et *strongylus duodenalis*.

LOCALITIES.—Egypt and Italy.

DESCRIPTION.—A nematoid worm, the male about $\frac{1}{4}$ inch, and the female $\frac{1}{2}$ an inch long. Mouth furnished with a cup-shaped sucker, on the edge of which are three pairs of hooks; and posterior to these, at the



Fig. 111.

Fig. 112.

entrance of the gullet, three lancet-like blades (Fig. 111 in profile and front view, Leuckart). The eggs (Fig. 112) closely resemble those of oxyuris, but they are more elongated, and open by an operculum.

SYMPTOMS.—The parasite infests the upper part of the small intestine;

it fixes itself by the hooked sucker, and incises the mucous membrane with the teeth exactly as a leech does. They cause considerable hæmorrhage, and their bites are followed by patches of ecchymosis in the sub-mucous tissue. When, as often occurs, they exist in great numbers, cutting pains in the abdomen are experienced, and the repeated attacks of hæmorrhage, and interference with intestinal digestion, cause anæmia ("*Egyptian chlorosis*"), ending in dropsy and exhaustion.

According to Dr. Sondiregger, 117 deaths occurred in 1880, amongst the workmen engaged in the St. Gothard tunnel.

TREATMENT.—Oil of male fern (3 i. to 3 ij.) is said to be the appropriate remedy.

TRICHINA SPIRALIS.—TRICHINATOUS DISEASE.

SYMPTOMS.—Extreme lassitude and depression; sleeplessness and loss of appetite; pyrexia, accompanied by severe muscular pains, and occasionally œdema of the joints, followed sometimes by painful and persistent contractions of the flexor muscles of the extremities. In many cases the disease sets in with diarrhœa, and it usually terminates in pneumonia. In some cases typhous symptoms come on, and the patient dies uncon-



Fig. 113.



Fig. 114.

scious. The disease, when fatal, runs its course within a month of the introduction of the parasite.

MORBID ANATOMY.—Muscles pale, reddish gray, speckled with minute lighter colored points, which, on microscopical examination, prove to be Trichinæ in all stages of development, lying free upon and within the

sheaths of the muscular fibres. They pervade all the muscles, and have been observed in the substance of the heart.

SOURCE OF THE PARASITE.—Pigs in some part of Germany are infested with *Trichinæ*, and their propagation within the human body results from the ingestion of raw or imperfectly cooked pork or sausages. The domestic animals are readily infected by the same means. Dr. W. Muller, of Homburg, describes (*Lancet*, Jan. 23d, 1864, p. 93) an epidemic of trichiasis in Hettstadt, in Prussia, from eating imperfectly cooked sausages made of pork infected with the parasite. At one time 80 out of a population of 5,500 were affected, and eighteen or twenty had previously died of it.

Man is infested with this parasite much more frequently than was at first supposed; for Dr. Zenker, of Dresden, found *Trichinæ* in four out of 136 dissections.

The *Trichinæ* begin to develop almost immediately after their introduction into the stomach, males, females, and innumerable embryos being produced within the intestinal canal, whence, by means of the circulation, the latter make their way to their favorite habitat, the muscles, and produce the violent symptoms above mentioned, until they become inclosed within capsules, in which state they are harmless. Fig. 113 represents the animal incapsulated amongst the muscular fibres; Fig. 114 the free mature animal; *a*, the mouth; *b*, sudden alteration in the form of the intestine; *c*, the male organ.

The non-encysted animals are not visible to the naked eye. The encysted also, unless they have undergone cretaceous degeneration, require the aid of a pocket lens for their detection.

TREATMENT.—Since the parasite is carried into the most distant parts of the body with astonishing rapidity, no remedy can be of any avail unless it obtain, like *santonin*, a speedy admission into the blood.

TÆNIA.—TAPE-WORM.

SYMPTOMS.—Those already described under *Ascaris lumbricoides*. The tape-worm occupies the whole track of the intestines, but chiefly the ileum. Joints of the worm (*c*, Fig. 115) are passed with the fæces, or they escape as the patient moves about.

DIAGNOSIS.—The appearance of the joints, or *proglottides*, in the motions. They are flat, about half an inch long, and a quarter of an inch broad, and present a little, round, cup-shaped aperture upon one or other side. Two species are met with, the *T. solium*, and the *T. mediocanellata*. In London I find the latter by far the more common. At first sight there is very little to distinguish these two species of parasites. They vary in length from four to twenty feet. *T. mediocanellata* is the larger and more robust form; it is known by the absence of rostellum and hooklets, and

by the more ramified form of the uterine organ. These forms are illustrated in Figs. 115 and 116. A, represents the anterior extremity of *T. mediocanellata*, natural size. B, $\times 6$ shows the flat head, the sucking discs, and the absence of the hooklets. C, one of the joints \times about 2.

Fig. 116 A, $\times 4$, and B, $\times 2$, show the corresponding parts of *T. solium*. The ripe joint, or proglottis, is the adult hermaphrodite animal, capable of maintaining an independent existence. The branched organ in the centre is the uterus, or ovisac, and contains thousands of ripe spherical eggs.

PROGNOSIS.—It is easy to remove considerable portions of the worm by various remedies. The entire worm is less frequently expelled. Search should always be made for the head. Until this is expelled, the patient is not effectually relieved; but when any number of the small joints at the upper end of the worm are expelled, it is probable that the head has also been removed.



Fig. 115.



Fig. 116.

SOURCE OF THE PARASITE.—*Tænia solium* is derived from pork, which is liable to be infected with its larval form, known as *Cysticercus cellulosæ*. *Tænia mediocanellata* is in like manner admitted into the body by means of veal and beef, which often contain the larval form of this species.

PROPHYLAXIS.—In order to prevent the development of the parasite, all animal diet should be perfectly cooked, so that the meat, when brought to table, should be firm, and destitute of tremulousness and blood color. Pork, and sheep's brains in particular, should be completely cooked. The pernicious habit of eating imperfectly cooked meat doubtless results in other diseases besides those due to parasites.

TREATMENT.—Half an ounce of oil of turpentine, followed after two hours by an ounce of castor oil. This treatment rarely fails to remove the tape-worm, but it is open to the objection that the turpentine acts as a stimulant to the brain and urinary organs, sometimes producing painful strangury. It is much less apt, however, to produce its effect if speedily

followed by castor oil. Kousso, in the form of infusion ($\frac{3}{4}$ ss.— $\frac{3}{4}$ i. to O. ss. of water), taken at a single dose. This is an extremely effective remedy. The liquid extract of the male fern-root in the dose of 3 i. to 3 iii. It may be given in capsules. This remedy never fails to expel the parasite.

The Kamela or *Rottlera tinctoria* in the dose of gr. 50 to gr. 100 in water.

These remedies should be given on an empty stomach: half an ounce of castor oil being taken over night, the anthelmintic in the morning, and a second dose of castor oil two hours afterwards. No food to be taken while the medicines are being administered.

BOTHRIOCEPHALUS LATUS.—BROAD TAPE-WORM.

SYMPTOMS.—Those of *Tænia*. The *Bothriocephalus latus* is very rare in England. It is as common in Switzerland and Russia as *Tænia* is in England. It occurs in France, in common with the *Tænia solium*.

DIAGNOSIS.—From the common tape-worm by the shape of the head, which is marked in the direction of its length by a groove, and by the absence of rostellum, hooklets, and suckers. The Proglottis is also quite distinct. The head, A and B, and some of the mature segments, C and D, are shown in the subjoined engraving; B and D are magnified. (Leuckart.)

TREATMENT.—That of the common tape-worm.

DISTOMUM HEPATICUM.—LIVER FLUKE.

This trematode worm infests the bile ducts of our graminivorous animals, especially the sheep, producing great thickening, dilatation, and obstruction of the ducts, leading to a sallow

anæmic condition, and ending in emaciation and dropsical effusions. Man is occasionally infected. The following illustrative case by Drs. Humble and Lush, is recorded in the *British Medical Journal*, 1881, vol. ii., p. 75.

A laborer, aged 52, after becoming immensely stout, was overtaken with symptoms resembling those of gastric and hepatic cancer, attended by faintness, pallor, and anorexia. His illness extended over a period of about seven months—from September to March.

Severe vomiting was an early and constant symptom, and there was tenderness of the right hypochondrium and ileum. Abscesses formed in connection with the rectum, with the separation of a slough, five inches by



Fig. 117.



Fig. 118.

three. He improved for a time, but became worse, continued to sink, had rigors, and died about three months afterwards.

The upper part of the rectum was found thickened and narrow, and fistulous abscesses opened into it. The liver was grayish-red, tense, smooth, greasy, and easily broken down, and weighed three pounds. The hepatic ducts were considerably thickened and enlarged, and contained about twenty-six fully developed *D. hepaticum*.

TREATMENT.—Large doses of iodide of potassium are worth a trial.

OTHER ANIMAL PARASITES.

In addition to the animal parasites treated of in the preceding pages and in the body of the work (pp. 56, 81, 182, 196, 199, 248), the following are occasionally met with in man.

CESTOIDEA.—*Tænia cucurbitina*, *grandis*, *saginata*, *acanthotrias*, *flavopuncta*, *marginata*, *nana*, and *elliptica* (*T. canina*). *Bothryocephalus cordatus*. These parasites inhabit the alimentary canal, but may be carried to any part of the system.

TREMATODA.—*Distomum crassum*, *lanceolatum*, *heterophyes*. These parasites inhabit the portal vein and gall ducts. *Distomum ophthalmobium* has been found in the eye (?).

NEMATOIDEA.—*Ascaris mystax* (intestines); *Filaria oculi seu lentis*; *Filaria bronchialis*; *Tetrastomum renale* and *Strongylus gigas* (in the kidneys); *Spiroptera hominis* and *Dactylius aculeatus* (?) (discharged from the bladder).

The *treatment* of these parasites will be determined by their locality and the symptoms which they occasion. The tape-worms require the same remedies as *T. solium*. The *Ascaris mystax* may be expected to yield to the treatment prescribed under *Ascaris lumbricoides*. When the parasites are known to inhabit the bladder, the injection of bitter infusions may be employed.

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CHAPTER X.

POISONS.

THE subject of Poisons is here treated simply as a branch of the Practice of Medicine. For details the reader is referred to works on Toxicology, or Forensic Medicine. The antidotes for the principal poisons are given at the end of the chapter. The old division into: 1. Irritants, 2. Narcotics, 3. Narcotico-irritants, is retained for convenience. To these is added 4. Animal poisons.

1. IRRITANT POISONS.

DEFINITION.—Poisons which cause corrosion, inflammation, or irritation in the alimentary canal, with or without specific effects on other organs.

SYMPTOMS.—After an interval varying from a few seconds to half-an-hour or more, vomiting and purging; with pain in the stomach and bowels, increased by pressure; and accompanied by inflammatory fever, or extreme prostration of strength. Pain and constriction of the mouth, throat and gullet, accompanying or following the act of swallowing; intense thirst; hoarse voice, wheezing respiration, and cough; discharge of blood from the stomach and bowels; tenesmus; strangury, dysuria, or suppression of urine. Epileptiform convulsions and cutaneous eruptions are occasional symptoms. The remote constitutional effects, whether common or specific, are various.

MORBID APPEARANCES.—Marks of corrosion, inflammation, suppuration, or gangrene in the stomach and upper part of the alimentary canal, extending, in certain cases, to the gullet, throat and mouth, and through the whole length of the intestines. Perforation of one or other of these parts. In certain cases, signs of inflammation in the windpipe and lungs; in the peritoneum and pleura; in the rectum and bladder; in certain other cases, peculiar stains or indications of the action of the poison on the mouth, throat, gullet, stomach, and duodenum.

DIAGNOSIS.—*During life*, from English and Asiatic cholera, in many cases of irritant poisoning, by the bloody evacuations from the stomach and bowels, and in many other cases by the effect of the poison upon the mouth, throat, and gullet. In other instances, again, by the specific remote effects of the poison (*e.g.*, inflamed eyes, gastritis, and rapid pulse,

in poisoning by arsenic; salivation in poisoning by the preparations of mercury; jaundice, in poisoning by phosphorus and the preparations of copper; pneumonia, and extreme depression, in poisoning by tartar emetic; inflammation of the urinary organs, in poisoning by cantharides and phosphorus). *After death*, by the traces of acute inflammation, and its consequences in the several portions of the alimentary canal; and in many cases by appearances in the upper part of the canal appropriate to particular irritant poisons, or to the corrosive poisons as a sub-class of the irritants.

PROGNOSIS.—Dependent on the nature, dose, and concentration of the poison, the vehicle, the more or less prompt administration of an antidote, the state of the stomach (whether full or empty), and the patient's age and strength.

MORTALITY.—This varies, in the case of the poisons contained in this class, from more than half the cases to a rarely fatal result.

TREATMENT.—After the administration of an antidote (if any exist), the prompt and complete evacuation of the stomach by the stomach-pump (except in the case of strong corrosive poisons), or by emetics of common salt, mustard, ipecacuanha, or sulphate of zinc, assisted by large draughts of warm water, and tickling the throat with a feather or with the finger. After the evacuation of the stomach, the free use of milk, gruel, barley-water, and abstinence from all solid food. When inflammation runs high, ice or iced-water; when great tenderness is present, leeches followed by warm fomentations. When the bowels cease to discharge blood, and the patient suffers from tenesmus or constipation, one or two table-spoonfuls of castor-oil, with twenty drops or half a drachm of laudanum, mixed with a small quantity of hot milk. Extreme prostration will require the use of larger doses of laudanum, with wine or brandy. When fever runs high, it may be necessary to draw blood from the arm. Occasional symptoms, and symptoms peculiar to certain persons only, must be treated in the same manner as the same symptoms due to other causes.

2. NARCOTIC POISONS.

DEFINITION.—Poisons which act on the brain and spinal marrow, and give rise to symptoms referable to those organs alone.

SYMPTOMS.—After an interval, varying from a few seconds to one or two hours, the patient is seized with giddiness, headache, dimness of vision, singing in the ears, drowsiness passing into stupor, and ending in coma, with palsy, epileptiform convulsions, or tetanic spasms.

MORBID APPEARANCES.—Often very slight. The brain healthy; or the veins and sinuses gorged with blood, with serum in the ventricles and at the base. In rare instances extravasation of blood.

DIAGNOSIS.—From the close resemblance of the symptoms of narcotic

poisoning to some forms of apoplexy, a satisfactory distinction is often impossible. But in ordinary apoplexy a want of bilateral symmetry, such as inequality of the pupils, or a difference in the degree of palsy, or convulsion on the two sides, points to cerebral hæmorrhage.

PROGNOSIS.—This, too, cannot be laid down for the entire class, as the chances of recovery vary greatly with the poison that has been taken.

TREATMENT.—The prompt use of the stomach-pump, and until that can be procured, of emetics of common salt, mustard, ipecacuhana, or sulphate of zinc. The cold affusion in the early stage of the poisoning. The patient to be kept awake by forced exercise, or flicking the hands and feet with a wet towel. After the complete evacuation of the stomach, strong coffee or tea, and diffusible stimulants, freely administered. The bowels to be relieved by full doses of castor-oil. So long as the surface continues cold and livid, assiduous friction, and warm bottles to the feet and pit of the stomach, or the hot air-bath. In extreme cases, artificial respiration and galvanic shocks passed from the spine of the neck to the pit of the stomach. *This is the treatment of cases of poisoning by opium.* In poisoning by *prussic acid*, the cold affusion is the first remedy to be employed; and in cases which survive some minutes or hours, heat and assiduous friction, to restore warmth to the surface, must take the place of the compulsory exercise necessary in poisoning by opium, and other narcotics.

For the treatment of poisoning by chloroform, see page 68.

3. NARCOTICO-IRRITANT POISONS.

DEFINITION.—Poisons which produce the combined effects of irritants and narcotics; the irritant action being generally less violent than in the case of pure irritants, and delirium of more common occurrence than in poisoning by the pure narcotics.

SYMPTOMS.—At an interval varying from about an hour to three or four hours after swallowing the poison (which, in many cases, has a peculiar taste), giddiness, disorders of the senses of sight and hearing, delirium, convulsions, tetanic spasms, stupor passing into coma; preceded or accompanied by vomiting and purging, with pain and tenderness of the abdomen. As a general rule the narcotico-irritants act chiefly or wholly as narcotics in very large doses, and mainly as irritants in small ones.

MORBID APPEARANCES.—Not strongly marked or uniform. Signs of inflammation in the stomach and bowels, with cerebral congestion.

DIAGNOSIS.—From most of the pure irritants by the presence of symptoms of narcotic poisoning. From the pure narcotics by the presence of more or less irritation in the alimentary canal.

The following indications of particular poisons or groups of poisons may be added.

Delirium affords a presumption of poisoning by belladonna, hyoscyamus, stramonium, or some plant belonging to the *Solanaceæ*. Symptoms of *intoxication*, give a like presumption of the use of alcohol, æther, chloroform, or of some liquid or gaseous hydro-carbon; *tetanic convulsions* are nearly conclusive of the presence of strychnia; *extreme muscular weakness* affords a presumption of the operation of hemlock, gelsemium, aconite, tobacco, lobelia inflata, and the Calabar bean; *sudden prostration* following quickly on the swallowing of the poison afford a strong presumption of the action of prussic or oxalic acid; and a very slow and weak pulse attends poisoning by digitalis.

PROGNOSIS.—Dependent chiefly on the early or late commencement of the treatment, and on the circumstances mentioned under Narcotics.

TREATMENT.—The prompt use of the stomach-pump, or of emetics, followed by aperients and enemata, if required. The rest of the treatment to be determined by the symptoms present; if chiefly those of irritant poisoning, the treatment proper to the irritants; if chiefly of narcotic poisoning, the treatment prescribed under Narcotic Poisons.

4. ANIMAL POISONS.

1. SNAKE-BITES. *Symptoms*.—Rapid loss of strength, and ultimate paralysis of the cerebro-spinal nervous system, and sooner or later involving the ganglia of the heart. Pain in the bitten part, followed by swelling and extravasation of blood in the areolar tissue. Swelling of the member, and extreme lassitude and depression follow the bite of the common viper. (Pelias Berus.)

SCORPION AND INSECT STINGS.—The sting of the former approaches in severity that of the poisonous snakes. It is very painful, and is followed by swelling, vomiting, faintness, and sometimes death. Stings of the wasp and bee tribe are only dangerous when the parts about the base of the tongue are stung in the act of swallowing. Bugs, sand-flies, mosquitoes, and several other species of gnats, and ants, rarely produce any other inconvenience than local irritation, with more or less inflammatory swelling.

Treatment.—For snake bites, the simultaneous application of a tight ligature round the part, and continued suction or the wound. After this has been effectually done, the application of a penetrating caustic, such as strong solutions of caustic potash, or chloride of zinc. If the breathing or heart shows signs of failure, artificial respiration, and diffusible stimulants must be resorted to. The most hopeful means of preventing paralysis of the cardiac ganglia is the subcutaneous injection of $\frac{1}{6}$ grain of sulphate of atropia every hour. Scorpion stings require similar treatment. The immediate application of solution of ammonia to the puncture prevents the inflammatory irritation consequent on insect

stings. But when these occur about the fauces, and suffocation impending, the trachea must be opened.

ANTIDOTES TO THE PRINCIPAL POISONS.

ACIDS, MINERAL, VEGETABLE, AND ORGANIC (such as carbolic acid).—

Calcined magnesia or its carbonate; common or prepared chalk, whiting, or compound chalk powder; a dilute solution of carbonate of soda, or potash; in an emergency, the plaster ceiling crushed and mixed with water; soap suds, or oil.

ÆTHER.—Same as for chloroform. (See p. 68.)

ALCOHOL.—The stomach pump, and cold affusion.

ALUM.—Calcined magnesia.

AMMONIA AND ITS CARBONATE.—Vinegar and water, oil.

ANTIMONY, CHLORIDE OF.—Magnesia, carbonate of soda.

ARSENIOUS ACID AND THE SOLUBLE ARSENITES.—Magnesia suspended in milk; the hydrated sesquioxide of iron; or powdered charcoal; a mixture of oil and lime water.

BARYTA, SOLUBLE SALTS OF.—Sulphate of magnesia or of soda.

BARYTA, CARBONATE OF.—Sulphate of magnesia with weak vinegar.

CARBOLIC ACID.—Chalk, magnesia, oil.

CHLORINE.—Ammonia; magnesia.

CHLORAL HYDRATE.—That of opium. (See p. 304.)

CHLOROFORM.—(See p. 68.)

COPPER, SOLUBLE SALTS OF.—White of egg; iron filings.

CYANIDE OF POTASSIUM.—A mixed solution of sulphate and perchloride of iron, and the treatment for prussic acid.

HYDROCYANIC ACID.—After cold affusion, liquor chlorinii, the mixed oxides of iron diffused through water, ammonia, and the treatment of asphyxia. (See p. 304.)

IODINE.—Starch; a very dilute solution of caustic potash or soda.

IRON, SULPHATE OF.—Carbonate of soda or carbonate of ammonia.

LEAD, SOLUBLE SALTS OF.—Sulphate of soda or magnesia.

LEAD, CARBONATE OF.—Sulphate of magnesia with weak vinegar.

LIME.—Vinegar and water.

MERCURY, SOLUBLE SALTS OF.—White of egg; flour and water.

NITRO-BENZOLE.—Stomach pump, and cold affusion.

OIL OF BITTER ALMONDS.—That of hydrocyanic acid.

OPIUM AND MORPHIA.—The stomach-pump or mustard emetics, electro-magnetism, etc. (See p. 304.)

OXALIC ACID AND THE SOLUBLE OXALATES.—Common chalk. Whiting, prepared chalk, or compound chalk powder, magnesia.

PHOSPHORUS.—After an emetic of sulphate of copper, 40 minims of oil of turpentine in mucilage, every quarter of an hour. After four

doses magnesia diffused through water, or suspended in mucilage, may be given with advantage.

POTASH AND ITS CARBONATES.—Vinegar and water; oil.

SILVER, NITRATE OF.—Solution of common salt.

SODA AND ITS CARBONATES.—Vinegar and water; oil.

STRYCHNIA.—Chloroform, nicotine and conia, and tincture of aconite.

SULPHURET OF POTASSIUM.—Weak solution of chlorine.

TARTAR EMETIC.—Tannin; tincture of bark, catechu; strong tea.

ZINC, CHLORIDE AND SULPHATE OF.—A dilute solution of carbonate of soda.

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CLASSIFICATION OF REMEDIES AND FORMULÆ, ETC.

EXCEPT when otherwise stated, the medicines prescribed in the following Formulæ are those of the British Pharmacopœia of 1867, and the *imperial weights and measures* adopted in that work are of course employed here. They are as follows:—

WEIGHTS.

1 pound . . lb. i.	=	16 ounces . .	=	7000 grains.
1 ounce . . ℥ i.	=			437.5 “

MEASURES.

1 gallon . . C. i.	=	8 pints . .	=	O. viij.
1 pint . . O. i.	=	20 fluid ounces	=	f ℥ xx.
1 fluid ounce f ℥ i.	=	8 drachms . .	=	3 viij.
1 drachm . . ℥ i.	=	60 minims . .	=	℥ lx.

The doses are full doses for Adult Males, unless otherwise stated. For Adult Females they must be somewhat diminished, according to the judgment of the practitioner. In prescribing for younger persons of either sex, the subjoined table of doses may be safely followed. The dose for the Adult Male is taken at 60 grains or 60 minims.

	Gr. or ℥.		Gr. or ℥.
Adult male . . .	lx. or 1	3 years . . .	x. or $\frac{1}{2}$
14 years . . .	xxx. or $\frac{1}{2}$	1 year . . .	vi. or $\frac{1}{10}$
7 years . . .	xx. or $\frac{1}{3}$	6 months . . .	ij. or $\frac{1}{20}$
5 year . . .	xv. or $\frac{1}{4}$	3 months . . .	ij. or $\frac{1}{30}$

Except when otherwise indicated, each prescription is for a single dose, and such as may be repeated every four or six hours.

STIMULANTS.

1. GENERAL STIMULANTS.

(Including Diffusible Stimulants and Stimulant Antispasmodics.)

1. Ammonię carbonas Dose gr. ij. to gr. x.
2. Liquor ammonię “ ℥ v. — ℥ x.

3. Liquor ammoniæ acetatis	Dose 3 ij. — 3 vi.
4. Liquor atropiæ sulphatis and liquor atropiæ	“ ℥iij. — ℥v.
5. Spiritus ammoniæ aromaticus	“ ℥xx. — 3 i.
6. Spiritus chloroformi	“ 3 ss. — 3 ij.
7. Ammoniæ hydrochloras	“ gr. x. — xxx.
8. Æther (sulphuricus)	“ ℥xx. — 3 i.
9. Spiritus ætheris nitrosi	“ 3 ss. — 3 ij.
10. Mistura spiritus vini Gallici	“ 3 i. — 3 ij.
11. Oleum anethi, anthemidis, anisi, carui, caryophylli, cinnamomi, juniperi, sabinae, lavandulæ, terebinthinæ, roris- marini, menthæ (viridis et piperitæ), myristicæ, pimentæ, cajuputi, pulegii, limonis, rutæ	“ ℥iij. — ℥v.
12. Spiritus camphoræ, cajuputi, armoraciæ compositus, juniperi, menthæ piperitæ, myristicæ, lavandulæ, and rorismarini	“ ℥xx. — ℥xl.
13. Tinctura aurantii; assafœtidæ; belladon- næ; benzoini; buchu; capsici; cardamo- mi composita; cascarillæ; castorei; chlo- roformi composita; cinchonæ flavæ; cinchonæ composita; cinnamomi; gen- tianæ composita; guaiaci ammoniata; lavandulæ composita, limonis; lupuli; myrrhæ; serpentariæ; sumbul; valeria- næ; valerianæ ammoniata; and zingi- beris	“ 3 ss. — 3 ij.
14. Camphora	“ gr. v. — gr. x.
15. Aqua camphoræ	“ 3 i. — 3 ij.
16. Moschus	“ gr. v. — xx.
17. Assafœtida	“ gr. v. — xx.
18. Kreasotum	“ ℥i. — ℥ij.
19. Phosphorus	“ gr. $\frac{1}{8}$ — $\frac{1}{4}$
20. Sumbul radix	“ gr. x. — gr. xx.

The aqua camphoræ, the distilled waters (aqua anethi, carui, fœniculi, cinnamomi, pulegii, pimentæ, menthæ—viridis and piperitæ), and the tonic infusions (infusum anthemidis, aurantii, buchu, calumbæ, caryophylli, cascarillæ, cinchonæ flavæ, cuspariæ, gentianæ compositum, chirata, krameriæ, lupuli, quassiæ, serpentariæ, and valerianæ), are appropriate vehicles for the stronger stimulants, and the syrups (especially the syrups aurantii and zingiberis) may be used to im art an agreeable flavor.

Stimulants in the form of Draught.

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|---|---|
| <p>1. R Ammoniae carbonatis gr. x.
Liq. ammoniae acetatis 3 iij.
Syrupi aurantii 3 i.
Aquaë 3 iss. Fiat haustus.</p> <p>2. R Sp. ammoniae aromatici
f 3 ss.
Træ. lavandulae compositae
3 i.
Aquaë 3 i. M.</p> <p>3. R Træ. guaiaci ammoniatae
f 3 ss.
Decocti cinchonae flavæ
f 3 iss. 1. M. fiat haustus.</p> <p>4. R Misturæ guaiaci 3 iss.
Ammon. carb. gr. viij. M.</p> <p>5. R Spiritus ætheris 3 i.
Tincturæ lavandulae co. 3 i.
Infusi valerianæ 3 iss. M.</p> <p>6. R Spiritus ætheris ℥xxx.
Spiritus ammon. arom. 3 ss.
Spiritus cajuputi 3 ss.
Infusi cascarillæ 3 iss. M.</p> <p>7. R Moschi gr. xx.
Pulv. tragacanthæ co. 3 ss.
Aquaë cinnamomi 3 iss. M.</p> <p>8. R Tr. valerianæ ammoniatae,
Tincturæ assafoetidaë aa 3 i.
Aquaë pimentæ 3 iss. M.</p> | <p>9. R Radicis armoraciæ excisæ
3 ij.
Seminis sinapis 3 iss.
Baccæ juniperi contusæ 3 iij.
Vini Xerici O. iij.
(Digest for one week and strain.
Dose, a wine-glassful. <i>Non-offi-</i>
<i>cinal</i>.)</p> <p>10. R Olei terebinthinæ 3 iv.
Ovi vitelli, unius.
Sacchari 3 ss.
Aquaë 3 iv. M. ($\frac{1}{4}$—$\frac{1}{2}$.)
(The whole, mixed with a pint of
gruel, may be also used as an
enema in certain cases.)</p> <p>11. R Kreasoti ℥i.
Misturæ amygdalæ 3 iss. M.</p> <p>12. R Tincturæ belladonnæ ℥xx.
Ammoniae carbonatis gr. v.
Misturæ camphoræ 3 iss. M.</p> <p>13. R Phosphori gr. v.
Olei olivæ f 3 ss.
Digest a fortnight in the dark and
add—
Olei carui ℥iv.
(Dose, 15 drops cautiously in-
creased, in milk. <i>Non-officinal</i>.)</p> |
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Stimulants in the form of Bolus, and Powder.

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|--|---|
| <p>14. R Terebinthinæ Canadensis
gr. v.
Pulv. glycyrrhizæ, quantum
sufficit. Fiat bolus.</p> | <p>15. R Camphoræ,
Moschi aa gr. x. M.
(The powder to be taken in barley
water; in hysteria.)</p> |
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2. STIMULANTS ACTING LOCALLY UPON CERTAIN SYSTEMS
OR PARTS.

THROUGH THE NERVES ON THE MUSCULAR SYSTEM.

(a.) *On the Voluntary Muscle.*

1. Extractum nucis vomicæ . dose gr. $\frac{1}{4}$, gradually increased to gr. ij
2. Liquor strychniæ . . . “ ℥v. (= $\frac{1}{4}$ gr.) to ℥x. (= $\frac{1}{2}$ gr.)

16. \mathcal{R} Strychniæ gr. i. | sufficient extract of gentian and
Dissolve in a few drops of alcohol, | liquorice powder to make 24 pills
and then mix intimately with | (one for a dose).

In the Form of Mixture.

17. \mathcal{R} Liquoris strychniæ, \mathfrak{m} iij. | 18. \mathcal{R} Tinct. ferri perchlor. \mathfrak{m} x.
Quiniæ disulphatis, gr. ij. | Liquoris strychniæ \mathfrak{m} iv.
Acidi hydrochlorici dil. \mathfrak{m} v. | Aquæ pulegii \mathfrak{z} i. ft. H.
Aquæ cinnamomi \mathfrak{z} iss. ft. H.

(b.) On the Involuntary Muscles.

ON THE UTERUS.

1. Pulveris ergotæ gr. xl.
2. Extractum ergotæ liquidum; dose, \mathfrak{m} xv. to 3 i.
3. Infusum ergotæ; dose, \mathfrak{z} i. to \mathfrak{z} ij.
4. Tinctura ergotæ; dose, 3 i. to 3 ij.

ON THE URINARY ORGANS.

- Cantharis vesicatoria. Dose in powder gr. $\frac{1}{2}$, cautiously increased.
Cantharidis tinctura. " \mathfrak{m} x., cautiously increased.
Sabinæ tinctura. " \mathfrak{m} xx.—3 i.
Sabinæ oleum. " \mathfrak{m} i.—v.

In the Form of Draught.

19. \mathcal{R} Tinct. cantharides \mathfrak{m} x. | Infusi buchu \mathfrak{z} iss. M.
Tinct. ferri perchloridi \mathfrak{m} xv.
Aquæ pimentæ \mathfrak{z} iss. M. | 21. \mathcal{R} Olei sabinæ \mathfrak{m} ij.
20. \mathcal{R} Tincturæ sabinæ 3 ss. | Spiritus chloroformi 3 ss.
Spiritus myristicæ 3 ss. | Aquæ \mathfrak{z} iss. M.

ON THE MUCOUS MEMBRANES.

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| Copaiba | dose \mathfrak{m} xx. to 3 ij. |
| Copaiba oleum | " \mathfrak{m} v. — \mathfrak{m} xx. |
| Pulvis cubebæ | " gr. xx. — gr. xxx. |
| Cubebæ oleum | " \mathfrak{m} v. — \mathfrak{m} xx. |
| Confectio piperis | " gr. lx. — cxx. |
| Balsamum Peruvianum | " \mathfrak{m} xv. — \mathfrak{m} xxx. |
| Confectio terebinthinæ | " gr. xxx. — l. |
| Balsamum toluatanum | " gr. xx. — gr. xxx. |
| Syrupus toluatanus | " 3 i. — 3 ij. |
| Tinctura tolutana | " 3 ss. — 3 i. |
| Tictura benzoini composita | " 3 ss. — 3 i. |
| Oleum terebinthinæ | " \mathfrak{m} x. — 3 i. |
| Terebinthina Canadensis | " gr. v. — xx. |

In the Form of Draught, etc.

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| 22. R Copaibæ 3 ss.
Liquoris potassæ ℥ x.
Syrupi tolutani 3 ss.
Aq. menth. pip. ʒ iss. M. | Syrupi papaveris 3 i.
Aquæ cinnamomi ʒ iss. M. |
| 23. R Pulveris cubebæ 3 ss. | 24. R Tinct. benzoini co. 3 ss.
Syrupi tolutani 3 i.
Pulv. tragacanth. gr. c.
Aqua ʒ iss. M. |

In the form of a Pill or Powder.

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| 25. R Copaibæ,
Magnesiæ āā gr. x. fiant
boli duo. | 26. R Pulveris cubebæ 3 i.
Sodæ bicarbonatis 3 ss.
Fiat pulvis. |
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Inhalations.

Vapor chlorinii. Vapor kreasoti. Vapor iodinii.

3. EXTERNAL AND LOCAL STIMULANTS.

1. CAUSTICS.

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| 1. Acidum nitricum. Acidum sulphuricum. Acidum arseniosum. | 4. Liquor ammoniæ fortior. |
| 2. Argenti nitras. | 5. Liq. hydrargyri nitratis acidus. |
| 3. Cupri sulphas. | 6. Soda caustica. |
| | 7. Potassa caustica. |
| | 8. Zinci chloridum et sulphas. |

2. VESICANTS.

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|----------------------------|-------------------------|
| 1. Charta epispastica. | 4. Linimentum crotonis. |
| 2. Emplastrum cantharidis. | 5. Oleum sinapis. |
| 3. Liquor epispasticus. | |

3. RUBEFACIENTS.

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|---|---|
| 1. Acetum cantharidis. | 5. <i>Emplastrum ammoniaci cum</i>
hydrargyro; galbani; picis
resinæ; calefaciens. |
| 2. <i>Acidum aceticum</i> ; hydrochloricum dilutum; nitricum dilutum; nitro-hydrochloricum dilutum; sulphuricum dilutum; sulphurosum. | 6. <i>Liquor ammoniæ</i> ; calcis chlorinata; sodæ chlorinata. |
| 3. <i>Amoraciæ radix</i> . | 7. <i>Mezeri extractum æthereum</i> . |
| 4. <i>Linimentum ammoniæ</i> ; camphoræ; camphoræ compositum; chloroformi; hydrargyri; iodinii; saponis; sinapis compositum; terebinthinæ; terebinthinæ aceticum. | 8. <i>Oleum cajuputi</i> ; caryophylli; crotonis; rutæ; rorismarini; terebinthinæ. |
| | 9. <i>Phosphorus</i> . |
| | 10. <i>Pix Burgundica</i> ; liquida; resina; terebinthinæ canadensis. Thus Americanum; balsa- |

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| <p>mum Peruvianum; balsamum tolutanum.</p> <p>11. Sinapis cataplasma.</p> <p>12. <i>Spiritus</i> ammoniæ aromaticus; cajuputi; camphoræ; chloroformi rectificatus; tenuior; rorismarini.</p> <p>13. Sulphurus iodidum.</p> <p>14. <i>Tinctura</i> arnicæ; cantharidis; capsici; iodinii; pyrethri.</p> | <p>15. <i>Unguentum</i> antimonii tartarati; calomelanos; hydrargyri iodidi rubri; hydrargyri nitratis; hydrargyri oxidi rubri; hydrargyri ammoniati; iodinii compositum; kreasoti; picisliquidæ; resinæ; elemi; cantharidis; sulphuris; terebinthinæ; sabinæ.</p> <p>16. Zinci sulphas.</p> |
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Stimulant Lotions.

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| <p>27. R. Acidi nitrici,
Acidi hydrochlor. āā ℥xx.
Aquæ f ℥ viij. M. fiat lotio.</p> <p>28. R. Acidi sulphurici diluti,
Aquæ destillatæ āā f ℥ ss.
M.</p> <p>29. R. Acidi sulphurosi,
Aquæ, partes æquales. M.</p> <p>30. R. Liq. ammoniæ fort. f ℥ i.</p> | <p>Spiritus rorismarini f ℥ ss.
Tinct. camphoræ f ℥ ij. M.
(A highly-stimulant application.)</p> <p>31. R. Zinci sulphatis gr. vi.
Spiritus rorsimarini,
Tincturæ lavandulæ compositæ āā 3 iss.
Aquæ f ℥ vss. M.
(Red wash.)</p> |
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Stimulant Collyria.

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| <p>32. R. Aluminis gr. v.
Aquæ ℥ i. Solve.</p> <p>33. R. Argenti nitratis gr. i.
Aquæ ℥ i. Solve.</p> <p>34. R. Cupri sulphatis gr. v.
Aquæ ℥ i. Solve.</p> | <p>35. R. Zinci sulphatis gr. ij.
Vini opii 3 ij.
Aquæ ℥ i. Solve.</p> <p>36. R. Hydrarg. perchloridi gr. ¼.
Aquæ destillatæ f ℥ i. Solve.</p> <p>37. R. Potassii iodidi gr. viij.
Iodinii gr. iij.
Aquæ destillatæ O.i. Solve.</p> |
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Stimulant Baths.

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| <p>38. R. Acidi hydrochlorici ℥ ij.-
℥ iv.
Aquæ q. s. M.</p> <p>39. R. Acidi nitro-hydrochlorici diluti O.i.
Aquæ tepidæ (96°) q. s. M.
(The acid may be used in the proportion of ℥ vi. to 8 gallons, as a bath or lotion.)</p> <p>40. R. Kreasoti 3 ij.
Glycerini ℥ ij.</p> | <p>Aquæ calidæ C.xxx. M.</p> <p>41. R. Iodinii 3 ij.
Liquoris potassæ f ℥ ij.
Aquæ calidæ C.xxx. M.</p> <p>42. R. Hydrargyri perchlor. gr. c.
Acidi hydrochlorici 3 i.
Aquæ C.xxx. Solve.</p> <p>43. R. Sulphuris præcipitati ℥ ij.
Sodæ hyposulphitis ℥ i.
Acidi sulphurici diluti ℥ ss.
Aquæ C.xxx. M.</p> |
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Stimulant Liniments.

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| <p>44. R Liquoris ammoniæ f ʒ ss.
Linimenti saponis f ʒ iss. M.</p> <p>45. R Tincturæ cantharidis f ʒ ss.
Linimenti saponis f ʒ iss.
(A good application to chilblains.)</p> <p>46. R Camphoræ gr. c.
Olei terebinthinæ f ʒ ss.
Linimenti camphoræ co.
ʒ ss. M.</p> <p>47. R Pulv. seminis sinapis gr. c.
Acidi acetici f ʒ ss.</p> | <p>Olei terebinthinæ f ʒ iss. M.</p> <p>48. R Antimonii tartarati gr. c.
Aquæ rosæ f ʒ ij.
Tincturæ cantharidis f ʒ i.
M.</p> <p>49. R Acidi sulphurici ʒ iss.
Olei terebinthinæ ʒ ss.
Olei olivæ f ʒ iss. M. caute.</p> <p>50. R Olei cajuputi f ʒ iss.
Linimenti camphoræ com-
positi f ʒ ss. M.</p> |
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Stimulant Ointments.

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| <p>51. R Argenti nitratis gr. x.
Unguenti simplicis gr. c. M.</p> <p>52. R Olei crotonis ʒ i.
Adipis ʒ i. M. fiat unguen-
tum.</p> <p>53. R Kreasoti ʒ v.-xxx.
Adipis ʒ ss. M.</p> <p>54. R Camphoræ gr. xv.
Olei olivæ ʒ ss.</p> | <p>Adipis ʒ i. M.</p> <p>55. R Camphoræ gr. xx.
Unguenti hydrargyri ʒ ss. M.</p> <p>56. R Potassæ carbonatis ʒ i.
Sulphuris precipitati ʒ ij.
Adipis ʒ iv. M.</p> <p>57. R Cupri sulphatis gr. xxx.
Acidi sulphurici diluti ʒ x.
Adipis ʒ i. M.</p> |
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Stimulant Gargles.

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| <p>58. R Tincturæ capsici ʒ ss.-ʒ i.
Syrupi ʒ i.
Aquæ rosæ ʒ vi. M.</p> <p>59. R Vini rubri Lusitanici ʒ vi.
Tincturæ capsici ʒ ss. M.</p> <p>60. R Acidi hydrochlorici dil.
ʒ ss.
Mellis rosæ ʒ i.
Decocti hordei ʒ viiss. M.</p> | <p>61. R Infusi rosæ acidi ʒ iii
Tincturæ myrrhæ ʒ ss.
Sacchari ʒ ss. M. ft. gar-
garisma.</p> <p>62. R Mucilaginis acaciæ ʒ viiss.
Olei terebinthinæ ʒ ss. M.</p> <p>63. R Potassæ chloratis gr. c.
Acidi hydrochlorici ʒ ij.
Aquæ ʒ viiss.</p> |
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Stimulant Enemata.

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| <p>Enema assafoetidæ.</p> <p>64. R Olei terebinthinæ,
Tincturæ assafoetidæ aa ʒ ss.
Decocti hordei O.i. M.</p> | <p>Enema terebinthinæ.</p> <p>65. R Spiritus rectificati ʒ ss.
Infusi serpentariæ ʒ iiss.
M.</p> |
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Stimulant Powders.

The salts of zinc, copper, and mercury.

Fumigations.

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| <p>66. R Sulphuris $\frac{3}{4}$ ss.—$\frac{3}{4}$ iss.
Iodini gr. xx.—l. M.
(A twelfth part of this powder to be used at a time. The vapors of sulphur and of iodine may also be used separately, in obstinate cutaneous diseases.)</p> <p>67. R Calomelanos gr. vi.—xxx.</p> | <p>68. R Manganessii binoxidi $\frac{3}{4}$ i.
Sodii chloridi $\frac{3}{4}$ ij.
Mix, then add—
Acidi sulphurici f $\frac{3}{4}$ i.
Aquæ f $\frac{3}{4}$ ij.
(Chlorine is given off from this mixture on applying heat.)</p> <p>69. R Hydrarg. sulphureti gr. xx.—xxx.</p> |
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4. NARCOTICS, ANODYNES, AND SEDATIVES AND THEIR DOSES.

(Including Antispasmodics belonging to these classes.)

1. Æther, ℥xx.—3 i.; as vapor 3 i.—3 ij.
2. Acidum hydrocyanicum dilutum, ℥ijj.—℥viij.
3. Aconiti extractum, gr. i.—gr. ij. Aconiti tinctura, ℥v.—℥xv.
The doses to be cautiously increased. Aconitia (only used externally).
4. Atropiæ liquor, ℥ijj.—℥v. A. sulphatis liquor, ℥ijj.—v.
5. Belladonnæ extractum, gr. $\frac{1}{4}$ —gr. i. Tinctura belladonnæ, ℥v.—℥xx.
6. Bismuthi carbonas gr. v.—xx.; subnitratis gr. v.—xx.; Liquor b. et ammoniæ citratis 3 ss.—3 ij.; trochisci (gr. ij. subnitrate in each) i.—vi.
7. Cannabis Indicæ extractum, gr. $\frac{1}{4}$ —gr. i.; tincturæ cannabis Indicæ ℥v.—3 ss.
8. Cerii oxalas, gr. i.—gr. ij.
9. Chloralis hydras, gr. x.—xl.
10. Chloroformi spiritus, ℥xv.—3 ij.; as vapor 3 i.—3 ij.
11. Colchici cormus et semen. Extractum colchici, gr. $\frac{1}{2}$ —gr. ij. Extracti colchici acetici, gr. $\frac{1}{2}$ —gr. ij. Vinum colchici, ℥x.—3 ss. Tinctura colchici seminum, ℥x.—3 ss.
12. Conii extractum, xv.—lxxx. Tinctura Conii fructûs, (inert.) Succus Conii, 3 i.— $\frac{3}{4}$ ij.
13. Digitalis folia, gr. $\frac{1}{2}$ —gr. iss. Infusum Digitalis, 3 ij.—3 iv. Tinctura Digitalis, gtt. x.—3 ss. Digitalinum g $\frac{1}{10}$ — $\frac{1}{30}$.
14. Hyoscyami folia, gr. v.—gr. x. Extractum Hyoscyami, gr. v.—xx. Tinctura Hyoscyami, ℥x.—3 ij.
Lactuæ extractum, gr. v.—xv.
Laurocerasi aqua, ℥v.—xxx.
15. Lobeliæ inflatæ pulvis, gr. i.—gr. v. Tinctura Lobeliæ, ℥x.—3 ss. Tincturæ Lobeliæ æthereæ, ℥x.—3 ss.
16. Morphia, gr. $\frac{1}{4}$ —gr. i. Morphiæ hydrochloras, gr. $\frac{1}{4}$ —gr. i. Li-

quor Morphiae hydrochloratis (gr. i. in $\frac{3}{4}$ ij.), ℥xv. — $\frac{3}{4}$ ij. Trochisci morphiae (gr. i. in 36 lozenges), 1 to 15 during the day. Trochisci morphiae et ipecacuanhæ (gr. i. in 36 lozenges).

(The subcutaneous use of morphia is often a dangerous proceeding, and the first dose by this method should never exceed $\frac{1}{8}$ of a gr., and it is well when we are unacquainted with the constitution of the patient to introduce $\frac{1}{80}$ gr. of atropia previously.)

17. Opium, gr. i.—g. vi.

Extractum opii, gr. $\frac{1}{2}$ —gr. ij.

Enema opii (3 ss. of laudanum=gr. ij. opium, to starch f $\frac{3}{4}$ ij.).

Extractum opii liquidum (gr. i. of extract in about ℥xxij.).

Pilula saponis composita (gr. i. in v.), gr. v.—gr. x.

Pilula styracis composita L. (gr. i. in v.), gr. v.—gr. x.

— plumbi cum opio (gr. i. in viij.), gr. iv.—viij.

Pulvis cretæ aromaticus cum opio (gr. i. in xl.) gr. x.—xl.

— kino compositus (gr. i. in xx.), gr. v.—xx.

— ipecacuanhæ compositus (gr. i. in x.), gr. v.—xv.

— opii compositus (gr. in x.), gr. ij.—v.

Tinctura opii (gr. i. in ℥xv.), ℥v.—3 ss.

— camphoræ composita (gr. i. in $\frac{3}{4}$ ss.), 3 ss.—f $\frac{3}{4}$ ss.

Trochisci morphiae ($\frac{1}{8}$ gr. morph. hydroch. in each), i.—vi.

— morphiae et ipecacuanhæ ($\frac{1}{8}$ gr. and $\frac{1}{16}$ gr.), i.—vi.

— opii (gr. i. extract in ten lozenges), 1 to 5 during the day.

Vinum opii (gr. i. in ℥xxij.), ℥v.—xl.

18. Papaveris syrupus, 3 i.; extractum, gr. ij.—v.

Physostigmatis extractum, gr. $\frac{1}{8}$ to $\frac{1}{4}$.

19. Stramonii folia et semina, gr. ij.—gr. x. Extractum stramonii, gr. $\frac{1}{4}$ —gr. iij. Tinctura stramonii ℥x.—xx.

20. Tabaci enema (tobacco gr. xx.—boiling water f $\frac{3}{4}$ viij.). Dose, the whole.

21. Veratria, gr. $\frac{1}{12}$ — $\frac{1}{6}$.

Narcotics, etc., in the form of Draught.

70. R Tincturæ opii ℥xx.
Aque cinnamomi,
Aque puræ aa 3 vi. M.

71. R Potassæ bicarb. gr. xx.
Aque menthæ viridis f $\frac{3}{4}$ i.
Tincturæ opii ℥xxv. M.
(To be taken with $\frac{3}{4}$ i. of lemon juice.)

72. R Tincturæ opii ℥xxx.
Liq. ammoniæ acetatis $\frac{3}{4}$ i.

Aque cinnamomi,
Syrupi tolutani aa f $\frac{3}{4}$ ss. M.

73. R Acidi sulphurici diluti ℥xv.
Tincturæ opii ℥x. vel tincturæ hyoscyami 3 ss.
Tincturæ digitalis ℥x.
Infusi quassiae $\frac{3}{4}$ iss. M.

74. R Acidi hydrocyanici diluti ℥v.

Misturæ amygdalæ $\frac{3}{4}$ iss. M.
75. R Bismuthi carbonatis gr. x.

Acidi hydrocyanici dilut. ℥ v.	Tincturæ digitalis ℥ x.
Mucilaginis acaciæ f ̄ i.	Liq. ammoniæ acetatis 3 ij
Syrupi aurantii 3 i. M.	Syrupi hemidesmi 3 i.
76. R Tincturæ digitalis ℥ x.	Aquæ destillatæ ̄ 3 iss. M.
Aquæ camphoræ,*	78. R Træ. seminis colchici ℥ xv.
Aq. cinnamomi āā 3 vi. M.	Infusi digitalis 3 iv.
77. R Potassæ nitratis gr. xv.	Aquæ cinnamomi ̄ 3 iss. M.

Narcotics, etc., in the form of Pill.

79. R Bismuthi subnitratis gr. x.	82. R Camphoræ pulveris,
Extracti hyoscyami gr. v.	Ext. hyoscyami āā gr. iiss.
ut fiant pilulæ duæ.	Sp. rectificati q. s. ft. pil.
80. R Extracti hyoscyami gr. ̄ 1.	83. R Pulv. ipecacuanhæ gr. ij.
Pulv. ipecac. comp. gr. x.	Morphiæ hydrochlor. gr. ̄ 1
M. fiant pilulæ duæ.	In pilulas duas divide.
81. R Pulveris digitalis,	84. R Cerii oxalatis gr. ij.
— scillæ,	Extracti lactucæ gr. viij.
Extr. hyoscyami āā gr. v.	Fiant pilulæ duæ.
M. in pilulas tres divide.	

Narcotics, etc., in the form of Powder.

85. R Pulv. ipecac. comp. gr. i.	86. R Camphoræ gr. iij.
Sacchari gr. xx. M.	Spirit. vin. rect. ℥ ij.
(Divide into four powders. For	Pulv. ipecac. c. gr. v. M.
young infants. Each powder	(A powder to be taken at bed-
contains ̄ 1 ¹ / ₁₀ gr. of opium.)	time.)

Sedatives in the form of Vapor.

1. Vapor acidi hydrocyanici.	2. Vapor conii.
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5. EXTERNAL SÉDATIVE APPLICATIONS.

1. Cataplasma conii.
2. Chloroformum.
3. Decoctum papaveris.
4. Emplastrum belladonnæ (Resin and Extr. B. p. æ.); opii (gr. i. of powder in gr. x.).
5. Extractum aconiti; belladonnæ; conii; opii; opii liquidum.
6. Linimentum aconiti; belladonnæ; chloroformi; opii (gr. i. in 3 ss.).
7. Unguentum aconitæ (gr. viij. in ̄ 3 i.); atropiæ (gr. viij. in ̄ 3 i.); belladonnæ (gr. lxxx. to ̄ 3 i.); gallæ cum opio (gr. i. in about gr. xiv.); veratriæ gr. viij. in ̄ 3 i.).

Several preparations of the Pharmacopœia enumerated among narcotics and sedatives (pp. 315 *et seq.*) also admit of external application. All substances, too, which produce cold by evaporation or otherwise, may be said to belong to the class of sedatives.

Sedative lotions.

- | | |
|---|--|
| 87. R Tincturæ opii ℥xxx.
Aquæ ℥i. M. fiat lotio. | 90. R Extracti belladonnæ,
Extracti opii ana gr. ij.
Aquæ ℥i. M. fiat lotio. |
| 88. R Tincturæ opii,
Acidi hydrocyanici dil. āā
partes æquales.
M. fiat lotio. | 91. R *Potassii cyanidi gr. x.
Mist. amygdalæ ℥vi. M.
(*Non-officinal.) |
| 89. R Acidi hydrocyanici dil. ℥iss.
Misturæ amygdalæ f ℥viss.
M. fiat lotio. | 92. R Vini opii ℥xx.
Aquæ laurocerasi ℥i. M. |

Cold Applications.

- | | |
|---|---|
| 93. R Ammoniæ hydrochloratis,
Potassæ nitratis āā ℥iv.
Aquæ ℥viij.
Mix. (This is applicable whenever
intense cold is required.) | 94. R Ammoniæ nitratis,
Aquæ āā lb. i. Solve.
(In winter, mix equal parts of snow
and common salt. In summer,
two parts of pounded ice and one
of salt.) |
|---|---|

Sedative Fomentations.

- | | |
|---|--|
| 95. R Opii gr. c.
Aquæ ferventis O.i. M. | 96. R Extracti aconiti gr. lx.
Aquæ ferventis O.i. M. |
|---|--|

Sedative Ointments.

- | | |
|---|--|
| 97. R Plumbi acetatis gr. xxx.
Acidi hydrocyanici dil. 3 iij.
Unguenti simplicis ℥iij. M. | 98. R Potassii cyanidi gr. xij.
Olei amygdalæ 3 ij.
Unguenti simplicis ℥ij. M. |
|---|--|

Sedative Enemata and Suppositories.

Enema opii; E. tabaci.
 Suppositoria morphiae. S. Plumbi composita.

99. R Pilulæ saponis co. gr. v.
 Fiat suppositorium.

6. STIMULANTS, IN COMBINATION WITH NARCOTICS, SEDATIVES, AND ANODYNES.

(Including Stimulant and Anodyne Antispasmodics.)

In the form of Draught.

- | | |
|-----------------------------------|---------------------------------|
| 100. R Tr. valerianæ ammon. ʒ ss. | Spiritus ætheris, |
| Spiritus ætheris ʒ i. | Tincturæ camphoræ compo- |
| Tincturæ hyoscyami ʒ ss. | sitæ, |
| Aquæ camphoræ f ʒ i. M. | Syrupi papav. āā ʒ i. M. |
| 101. Tincturæ digitalis ʒ xv. | 104. R Tinct. opii ʒ ss. |
| Sp. ammon. comp. ʒ ss. | Mist. camphoræ f ʒ i. M. |
| Aquæ camphoræ ʒ iss. M. | 105. R Tincturæ opii ʒ x. |
| 102. R Moschi gr. x. | Spiritus ætheris ʒ xl. |
| Ætheris, | Aquæ camphoræ ʒ iss. M. |
| Tincturæ opii āā ʒ xx. | 106. R Tinct. colchici seminum, |
| Aquæ cinnamomi f ʒ i. I. | Spir. ammoniæ co. āā ʒ ss. |
| 103. R Aquæ camphoræ ʒ iij. | Infusi serpentariæ ʒ iss. M. |

In the form of Pill.

- | | |
|------------------------------------|---------------------------|
| 107. R Pil. assafoetidæ compositæ, | Olei cajuputi ʒ iij. |
| Camphoræ āā gr. v. | Pulveris opii gr. ss. |
| Fiant pilulæ duæ. | Extracti hyoscyami gr. v. |
| | Fiant Pilulæ duæ. |
| 108. R Castorei gr. v. | 110. R Kreasoti ʒ i. |
| Pil. saponis comp. gr. iij. | Pilulæ saponis compositæ |
| Olei menthæ pulegii gtt. i. | gr. iij. |
| Fiant pilulæ duæ. | Ext. hyoscyami gr. viij. |
| 109. R Camphoræ gr. v. | Fiant pilulæ duæ. |

7. EXTERNAL APPLICATIONS (STIMULANT AND SEDATIVE).

- | | |
|-------------------------------|-------------------------------------|
| 111. R Olei cajuputi f ʒ iss. | 113. R Tincturæ cantharidis f ʒ ss. |
| Tincturæ opii f ʒ ss. | Linimenti camphoræ f ʒ i. |
| Lin. terebinthinæ ʒ iij. M. | Liquoris ammoniæ ʒ i. |
| | Tincturæ opii ʒ iij. |
| 112. R Linimenti belladonnæ, | 114. R Olei crotonis ʒ x. |
| Linimenti chloroformi par- | Linimenti saponis co. ʒ i. |
| tes æquales. M. | Tincturæ opii f ʒ ss. M. |

ENEMATA (Stimulant and Sedative).

- | | |
|-----------------------------------|--------------------------|
| 115. R Tincturæ assafoetidæ ʒ ss. | 116. R Camphoræ gr. xx. |
| Tincturæ opii ʒ i. | Olei terebinthinæ f ʒ i. |
| Decocti hordei O.ss. M. | Decocti hordei O.ss. M. |

8. TONICS.

1. MINERAL.

Mineral Acids.

1. Acidum hydrochloricum dilutum . . .	dose	℥x. to ℥xxx.
2. Acidum nitricum dilutum . . .	"	℥x. — ℥xxx.
3. Acidum nitro-hydrochloricum dilutum . .	"	℥x. — ℥xxx.
4. Acidum phosphoricum dilutum . . .	"	℥x. — ℥xxx.
5. Acidum sulphuricum aromaticum . . .	"	℥x. — ℥xxx.
6. Acidum sulphuricum dilutum . . .	"	℥x. — ℥xxx.

Preparations of Iron.

7. Ferri et ammoniæ citras . . .	dose	gr. v. to gr. x.
8. Ferri arsenias . . .	"	gr. $\frac{1}{8}$ —gr. $\frac{1}{4}$.
9. Ferri carbonas saccharata . . .	"	gr. x.—gr. c.
10. Ferri iodidum . . .	"	gr. v.—gr. x.
11. Ferri et quiniæ . . .	"	gr. v.—gr. x.
12. Ferrum tartaratum . . .	"	gr. v.—gr. x.
13. Ferri oxidum magneticum . . .	"	gr. v.—gr. xxx.
14. Ferri peroxidum humidum . . .	"	gr. cc.— $\frac{3}{4}$ ss.
15. Ferri peroxidum hydratum . . .	"	gr. v.—3 i.
16. Ferri phosphas . . .	"	gr. v.—gr. xx.
17. Ferri sulphas . . .	"	gr. i.—gr. x.
18. Ferri sulphas exsiccata . . .	"	gr. i.—gr. x.
19. Ferri sulphas granulata . . .	"	gr. i.—gr. x.
20. Ferrum redactum . . .	"	gr. i.—gr. x.
21. Liquor ferri perchloridi . . .	"	℥iij.—℥x.
22. Liquor ferri pernitratis . . .	"	℥iij.—℥x.
23. Mistura ferri aromatica . . .	"	$\frac{3}{4}$ i. — $\frac{3}{4}$ ij.
24. Mistura ferri composita . . .	"	$\frac{3}{4}$ i. — $\frac{3}{4}$ ij.
25. Pilula ferri carbonatis . . .	"	gr. v.—gr. xx.
26. Pilula ferri iodidi (gr. v. = gr. i. $\frac{1}{8}$ nearly FeI) .	"	gr. v.—gr. xx.
27. Syrupus ferri iodidi (3 i. = gr. ivss. FeI) .	"	3 ss. — 3 ij.
28. Syrupus ferri phosphatis . . .	"	3 i. — 3 iv.
29. Tinctura ferri acetatis . . .	"	℥x. — ℥xxx.
30. Tinctura ferri perchloridi . . .	"	℥x. — ℥xxx.
31. Trochisci ferri redacti (1 gr. in each) . .	"	i. —vi.
32. Vinum ferri; et v. f. citratis . . .	"	3 i. — 3 iv.
33. Emplastrum ferri		

Preparations of Zinc.

34. Zinci acetas . . .	dose	gr. ij. to gr. v.
35. Zinci carbonas . . .	"	gr. ij. — gr. v.

36. Zinci oxidum dose gr. ij. — gr. v. or more.
 37. Zinci sulphas “ gr. ij. — gr. v. or more.
 38. Zinci valerianas “ gr. i. — gr. v.

Preparation of Copper.

39. Cupri sulphas dose gr. $\frac{1}{4}$ to gr. ij.

Preparations of Arsenic.

40. Acidum arseniosum dose gr. $\frac{1}{8}$ to gr. $\frac{1}{4}$.
 41. Ferri arsenias “ gr. $\frac{1}{8}$ to gr. $\frac{1}{4}$.
 42. Liquor arsenicalis (gr. iv. in f $\frac{3}{4}$ i., or $\frac{1}{4}$ gr. in \mathfrak{M} v.), dose \mathfrak{M} v.—x.
 43. Liquor arsenici hydrochloricus (gr. iv. AsO₃ in f $\frac{3}{4}$ i., or $\frac{1}{4}$ in \mathfrak{M} v.),
 dose \mathfrak{M} ij.— \mathfrak{M} viiij.
 44. Liquor sodæ arseniatis (gr. iv. in f $\frac{3}{4}$ i., or $\frac{1}{4}$ gr. in \mathfrak{M} v.), \mathfrak{M} v. — x.

Preparations of Silver.

45. Argenti oxidum dose gr. $\frac{1}{2}$ to gr. i.
 46. Argenti nitras “ gr. $\frac{1}{4}$ — gr. i.

2. VEGETABLE TONICS AND THEIR DOSES.

Unless otherwise specified the doses are as follows:

- | | |
|----------------------|---|
| Extractum | dose gr. iij. to gr. x. |
| Decoctum } | “ f $\frac{3}{4}$ ss. — f $\frac{3}{4}$ ij. |
| Infusum } | |
| Tinctura | “ 3 ss. — 3 ij. |
47. Anthemidis extractum, infusum.
 48. Aurantii infusum, infusum compositum, syrupus, tinctura.
 49. Beberiae sulphas—gr. i. to x.
 50. Calumbæ extractum, infusum, tinctura.
 51. Cascarillæ infusum, tinctura.
 52. Chiratae infusum, tinctura.
 53. Cinchonæ flavæ extractum liquidum (3 ss. to 3 iss.), decoctum, infusum, tinctura.
 54. Cinchonæ (pallidæ) tinctura composita.
 55. Cuspariæ infusum.
 56. Gentianæ extractum, infusum compositum, tinctura.
 57. Lupuli extractum, infusum, tinctura.
 58. Nucis vomicæ extractum (gr. $\frac{1}{2}$ to gr. ij.), tincturæ (\mathfrak{M} x. to \mathfrak{M} xx.)
 59. Pareiræ extractum; extractum liquidum (3 ss. to 3 iss); decoctum.
 60. Quassiae extractum, infusum.
 61. Quininæ sulphas (gr. i. to gr. v.), tinctura composita (3 i. to 3 iv.),
 vinum (3 ss. to 3 i.)
 62. Serpentariæ infusum, tinctura.
 63. Strychnia (gr. $\frac{1}{8}$ to gr. $\frac{1}{4}$); liquor (\mathfrak{M} v. = $\frac{1}{4}$ gr.) \mathfrak{M} ij. to \mathfrak{M} x.

Tonics in the form of Draught.

- | | |
|--|--|
| <p>117. R Quiniæ sulphatis gr. ij.
Tincturæ aurantii 3 i.
Infusi rosæ acidi 3 iss. M.</p> <p>118. R Liquoris arsenicalis ʒv.
Infusi lupuli 3 iss. M.</p> <p>119. R Acidi nitrici diluti ʒxxv.
Infusi anthemidis 3 iss. M.</p> <p>120. R Infusi aurantii 3 iss.
Træ. serpentariæ 3 ss. M.</p> <p>121. R Beberiæ sulphatis gr. v.
Infusi chirateæ 3 iss.</p> <p>122. R Infusi calumbæ 3 iss.
Acidi nitro-hydrochlorici
diluti ʒxxv. M.</p> <p>123. R Sodæ bicarbonatis gr. xx.
Tincturæ cascarillæ 3 i.
Infusi calumbæ 3 iss. M.</p> <p>124. R Infusi cuspariæ 3 iss.
Liq. strychniæ ʒiv. M.</p> <p>125. R Infusi cascarillæ 3 i.
Tincturæ aurantii 3 i. M.</p> <p>126. R Infusi lupuli 3 iss.
Tincturæ nucis vomicæ
ʒx. M.</p> <p>127. R Dec. cinchonæ flavæ 3 iss.
Acidi sulphurici dil. ʒxx.
M.</p> | <p>128. R Infusi lupuli 3 iss.
Extr. pareiræ liquidi 3 i.
Acidi hydrochlorici diluti
ʒx. M.</p> <p>129. R Træ. ferri perchloridi
ʒxx.
Infusi quassiæ 3 iss. M.</p> <p>130. R Ferri et quiniæ citratis gr.
v.
Syrupi aurantii floris 3 i.
Aquæ cinnamomi 3 iss. M.</p> <p>131. R Ferri et ammoniæ citratis
gr. x.
Spiritus ammoniæ arom.
3 ss.
Aq. menthæ pip. 3 iss. M.</p> <p>132. R Ferri iodidi gr. v.
Spiritus myristicæ 3 ss.
Aquæ menth. puleg. 3 iss.
M.</p> <p>133. R Ferri sulphatis gr. iij.
Magnesiæ sulphatis 3 ss.
Acidi sulphurici dil. 3 ss.
Aq. menth. pip. 3 iss. M.</p> <p>134. R Acidi phosphorici dil. 3 ij.
Syrupi aurantii 3 i.
Aquæ f 3 ʒix. M. (To be
used as a common drink)</p> |
|--|--|

Tonics in the form of Pills.

- | | |
|--|---|
| <p>135. R Cupri sulphatis gr. ʒ.
Pilulæ saponis co. gr. ij.
Micæ panis gr. ij. ft. pil.</p> <p>136. R Zinci valerianatis gr. ij.
Extracti lupuli gr. iij.
M. Fiat pilula.</p> <p>137. R Ferri sulphatis exsiccata
gr. v.</p> | <p>Extracti anthemidis gr. v.
Fiant pilulæ duæ.</p> <p>138. R Quiniæ sulphatis gr. i.
Extr. gentianæ gr. iv. M.</p> <p>139. R Argenti oxidi gr. i.
Extr. gentianæ gr. iv. M.</p> <p>140. R Argenti nitratis gr. ʒ.
Extr. hyoscyami gr. iv.
M.</p> |
|--|---|

Tonics in the form of Powder.

- | | |
|---|--|
| 141. R Ferri redacti gr. iij.
Pulv. cinnam. co. gr. v.
Misce, fiat pulvis.

142. R Ferri carbonatis saccha-
ratæ gr. x.
Pulveris cinnam. co. gr. v.
Fiat pulvis. | 143. R Ferri phosphatis gr. iij.
Pulveris cinnam. co. gr. v.
Misce, fiat pulvis.

144. R Pulveris cinchonæ 3 i.
Pulveris cinnam. co. gr. v.
Fiat pulvis. |
|---|--|

9. ASTRINGENTS.

(a.) Mineral.

1. The mineral acids.
2. Alumen dose gr. x. — gr. c.
3. Alumen exsiccatum “ gr. v. — gr. xv.
4. Argenti nitras “ gr. ½ — gr. i.
5. Cadmii iodidi, et unguentum (used ex-
ternally).
6. Mistura cretæ “ 3 i. — 3 ij.
7. Cupri sulphas
8. Ferri perchloridi, liquor et tinctura
- “ pernitratiss liquor
- “ sulphas exsiccata, et granulata
9. Plumbi acetās, “ gr. i. — gr. v.
10. Zinci acetās, et sulphas “ gr. ij. — gr. v.

(b.) Vegetable.

1. Belæ extractum liquidum dose 3 i. — 3 ij.
2. Catechu, pallidum “ gr. x. — gr. xxx.
3. “ pulvis compositus “ gr. v. — gr. xxx.
4. “ tinctura “ 3 ss. — 3 ij.
5. “ infusum “ 3 i. — 3 ij.
6. “ trochisci “ ij. — xx.
7. Cinchona pallida “ gr. xxx. — gr. c.
8. Cinchonæ tinctura composita “ 3 ss. — 3 ij.
9. Granati radiceis decoctum “ 3 i. — 3 ij.
10. Hæmatoxyli decoctum “ 3 i. — 3 ij.
11. Hæmatoxyli extractum “ gr. x. — 3 ss.
12. Kino pulvis compositus (one gr. opium in
gr. xx.) “ gr. v. — gr. xx.
13. Kino tinctura “ 3 ss. — 3 ij.
14. Krameriæ extractum “ gr. v. — x.
15. Krameriæ infusum “ 3 iss. — 3 ij.

16. Krameriæ tinctura	dose 3 ss.	— 3 ij.
17. Kreasotum	" ℥i.	— ℥iij.
18. Kreasoti mistura	" ʒi.	— ʒij.
19. Maticæ infusum	" ʒ ss.	— ʒ iv.
20. Pterocarpi lignum		
21. Lavandulæ tinctura composita	" 3 ss.	— ʒ ij.
22. Quercûs decoctum	" ʒ i.	— ʒ ij.
23. Gallæ pulvis	" gr. x.	— 3 ss.
24. Callæ tinctura	" 3 ss.	— 3 ij.
25. Acidi tannici trochisci	" ij.	— xx.
26. Acidi tannici suppositoria	" gr. x.	— gr. xxx.
27. Acidum gallicum, et tannicum	" gr. i.	— gr. v.
28. Acidi gallici, et A. tannici, glycerinum	" ℥x.	— ℥xxx.
29. Rosæ (Gallicæ) infusum acidum	" ʒ i.	— ʒ ij.
30. Rosæ (Gallicæ) confectio	" 3 ss.	— 3 ij.
31. Rosæ (Gallicæ) syrupus	" 3 ss.	— 3 ij.
32. Rosæ caninæ confectio	" 3 ss.	— 3 ij.
33. Ulmi decoctum	" f ʒ ij.	— f ʒ iv.
34. Uvæ ursi infusum	" f ʒ i.	— ʒ ij.

(c.) Mineral and Vegetable.

1. Pilula plumbi cum opio	dose gr. ij.	— gr. viij.
2. Pulvis cretæ aromaticus	" gr. x.	— gr. xxx.
3. Pulvis cretæ aromaticus cum opio	" gr. x.	— gr. xx.

Astringents in the form of Mixture or Draught.

145. R̄ Aluminis gr. x. Syrupi 3 i. Infusi rosæ acidi ʒ iss. M.	151. R̄ Extracti belæ liquidi 3 i. Infusi cuspariæ ʒ iss. M.
146. R̄ Acidi sulph. diluti ℥xx. Infusi rosæ acidi f ʒ iss. Syrupi rhœados f 3 i. M.	152. R̄ Tincturæ cinchonæ compo- sitæ 3 i. Infusi uvæ ursi ʒ iss. M.
147. R̄ Acidi nitro-hydrochlorici di- luti ℥xv. Infusi uvæ ursi ʒ iss. M.	153. R̄ Træ. lavandulæ compo- sitæ 3 i. Infusi krameriæ ʒ iss. M.
148. R̄ Misturæ cretæ ʒ i. Tincturæ opii ℥v. Tincturæ catechu 3 i. M.	154. R̄ Syrupi rosæ Gallicæ 3 i. Infusi catechu ʒ iss. M.
149. R̄ Træ. ferri perchloridi 3 ss. Infusi quassiæ ʒ iss. M.	155. R̄ Acidi gallici gr. v. Tincturæ opii ℥v. Infusi rosæ acidi ʒ iss. M.
150. R̄ Liquoris ferri pernitritis ℥xv. Syrupi aurantii floris 3 i. Aquæ ʒ iss. M.	156. R̄ Tincturæ krameriæ 3 i. Decoct. hæmatoxyli ʒ iss. M.

Astringents in the form of Pill.

- | | |
|---|---|
| 157. R Pilulæ plumbi cum opio
gr. iij.—gr. v.
158. R Acidi gallici gr. iij.
Plumbi acetatis gr. i.
Conf. rosæ Gal. q. s. ut
fiat pil.
159. R Acidi gallici gr. iiss.
Morphiæ gr. $\frac{1}{4}$ | Confectionis rosæ Gallicæ,
quantum sufficit ut fiat
pilula.
160. R Cupri sulphatis gr. $\frac{1}{4}$.
Pulveris opii gr. $\frac{1}{4}$.
Confec. rosæ C. gr. iij.
Fiat pil. |
|---|---|

See also Formulæ, p. 675.

Astringents in the form of Powder.

- | | |
|--|--|
| 161. R Pulv. cinchonæ pallidæ gr.
xl.
Acidi gallici gr. ij.
Misce ut fiat pûlvis. | 162. R Pulveris cretæ aromatici
cum opio gr. x.
Pulv. catechu comp. gr. x.
M. |
|--|--|

Astringent Lotions.

- | | |
|--|--|
| 163. R Argenti nitratis gr. ij.—xl.
Aquæ destillatæ $\frac{3}{4}$ i. Solve.
164. R Liquoris calcis $\frac{3}{4}$ i.
Olei olivæ $\frac{3}{4}$ ij. M.
165. R Cupri sulphatis gr. iij.—xl.
Aquæ camphoræ $\frac{3}{4}$ i. S.
166. R Acidi tannici gr. x.
Acidi hydrochlorici dil.
3 ss.
Aquæ $\frac{3}{4}$ i. Solve.
167. R Liquoris plumbi subaceta-
tis \mathfrak{M} xx. | Glycerini 3 i.
Aquæ rosæ $\frac{3}{4}$ viij. Misce.
168. R Liq. plumbi subacet. 3 ss.
Spiritus rectificati \mathfrak{M} xxx.
Aquæ destillatæ $\frac{3}{4}$ viij.
169. R Zinci chloridi gr. i.
Aquæ $\frac{3}{4}$ i. Solve.
170. R Zinci sulphatis gr. v.
Tincturæ lavandulæ com-
positæ \mathfrak{M} xxx.
Aquæ $\frac{3}{4}$ i. Solve.
171. R Zinci sulphatis gr. i. to x.
Aquæ rosæ $\frac{3}{4}$ i. Solve. |
|--|--|

Astringent Injections.

- | | |
|--|--|
| 172. R Aluminis gr. c.
Decocti quercûs O.i. S.
173. R Cupri sulphatis gr. ij.—x.
Aquæ $\frac{3}{4}$ i. S. et fiat injec-
tio.
174. R Liq. ferri perchloridi \mathfrak{M} iij.
Aquæ $\frac{3}{4}$ i. M. et ft. injec-
tio. | 175. R Liq. plumb. subacet. \mathfrak{M} x.
Extracti opii liquidi 3 ss.
Aquæ destillatæ $\frac{3}{4}$ i. M.
176. R Zinci sulphatis.
Aluminis ana gr. ij.
Aquæ $\frac{3}{4}$ i. Solve. |
|--|--|

Astringent Collyria.

- | | |
|---|---|
| 177. R Aluminis gr. iij. to gr. x.
Aquæ ʒ i. Solve. | Aquæ ʒ i. S. Ft. collyrium. |
| 178. R Argenti nitratis gr. i.—v.
Aquæ destillatæ f ʒ i. | 181. R Plumbi acetatis gr. ij.
Aquæ destillatæ ʒ i. S. |
| 179. R Cupri sulphatis gr. i.—v.
Aquæ ʒ i. Fiat collyrium. | 182. R Zinci sulphatis gr. i.—v.
Vini opii ʒ i. |
| 180. R Hydrargyri perchlor. gr.
ʒ i. | Aquæ ʒ vii. Fiat collyrium. |

Astringent Gargles.

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| 183. R Aluminis ʒ i.
Acidi sulphurici arom. 3 ss.
Tincturæ myrrhæ ʒ ij.
Decocti cinchonæ ʒ vi. M. | 184. R Glycerini acidi tannici
3 ij.
Infusi rosæ acidi ʒ vi. |
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Astringent Ointments.

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| 185. R Argenti nitratis gr. xx.
Adipis ʒ i. M. Fiat unguentum. | 188. R Cupri sulphatis gr. xxx.
Adipis ʒ i. M. |
| 186. R Acidi sulphurici 3 ss.
Adipis ʒ i. Ft. unguentum. | 189. R Hydrargyri perchlor. gr. v.
Adipis ʒ i. M. |
| 187. R Cretæ præcipitatæ ʒ i.
Olei olivæ ʒ ij.
Adipis ʒ ss. Misce. | 190. R Liq. plumbi subacet. ʒ i.
Adipis ʒ i. Misce. |

10. DEPRESSENTS.

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| 1. Acidum hydrocyanicum dilutum | dose ℥ij. to ℥viij. |
| 2. Antimonii oxidum | “ gr. i. — gr. v. |
| 3. Antimonium sulphuratum | “ gr. i. — gr. v. |
| 4. Antimonium tartaratum | “ gr. ʒ — gr. ʒ. |
| 5. Antimoniale vinum (gr. i. in ʒ ss.) | “ 3 ss. — ʒ ij. |
| 6. Antimonialis pulvis (i gr. terox. in iij. grs.) | “ gr. iij. — gr. xv. |
| 7. Colchici seminis tinctura | “ ℥xx. — ʒ i. |
| 8. Colchici extractum | “ gr. i. — gr. iij. |
| 9. Colchici extractum aceticum | “ gr. i. — gr. iij. |
| 10. Colchici vinum | “ ℥xx. — ʒ ij. |
| 11. Digitalis infusum | “ ʒ ij. — ʒ iv. |
| 12. Digitalis tinctura | “ ℥x. — ʒ ss. |
| 13. Digitalinum | “ gr. ʒ — gr. ʒ. |
| 14. Ipecacuanhæ pulvis | “ gr. v. — gr. x. |
| 15. Ipecacuanhæ vinum | “ ℥xv. — ʒ i. |

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| 16. Lobeliæ tinctura | dose ℥xx. — 3 i. |
| 17. Lobeliæ tinctura ætherea | " ℥xx. — 3 i. |
| 18. Scillæ syrupus | " 3 i. — 3 ij. |
| 19. Scillæ tinctura | " 3 ss. — 3 i. |
| 20. Tabaci enema | " 3 iv. — 3 viij. |
| 21. Veratri viridis pulvis | " gr. i. — gr. iij. |
| 22. Veratri viridis tinctura | " ℥v. — ℥xx. |

It must be borne in mind that these are *depressent* doses.

Depressents in the form of Draught or Mixture.

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| 191. R Vini antimonialis 3 ss.
Aquæ destillatæ 3 iss. M. | 194. R Tincturæ digitalis ℥xv.
Aquæ cinnamomi 3 iss. M. |
| 192. R Vini colchici 3 i.
Aquæ camphoræ 3 iss. M. | 195. R Acid. hydrocyanici dil. ℥v.
Misturæ amygdalæ 3 iss. M. |
| 193. R Tr. veratri viridis ℥xv.
Aquæ anethi 3 iss. M. | 196. R Vini ipecacuanhæ ℥xv.
Aquæ cinnamomi 3 iss. M. |

Depressents in the form of Powder.

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| 197. R Antimonii tartarati gr. i.
Sacchari albi gr. xxxi. M.
(Divide into parts proportioned to
the age, and give one, three or
four times a day.) | 198. R Antimonii tartarati gr. i.
Hydrargyri c. cretâ gr. xij.
Sacchari albi 3 i. Misce, et
in pulveres octo divide,
sumat unam quartis horis. |
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11. EMETICS.

There are two classes of emetics; the one consisting of stimulants, the other of depressents. A certain dose of either class of substances will excite vomiting. The following formulæ comprise medicines of both classes:—

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| 199. R Vini antimonialis 3 ss. | 205. R Ammoniæ carbonatis,
Pulv. ipecacuanhæ gr. xx.
Tincturæ capsic 3 iij.
Aquæ menthæ piperitæ f
3 ij. M. |
| 200. R Vini ipecacuanhæ 3 ss. | (When the sensibility of the stom-
ach is impaired, as in poisoning
with opium.) |
| 201. R Pulv. ipecacuanhæ gr. xx.
Vini antimonialis 3 ss.
Aquæ menthæ piperitæ
3 x. M. fiat haustus. | 206. R Tabaci foliorum 3 i.
Aquæ tepidæ q. s. |
| 202. R Zinci sulph. gr. xx. to xl.
Aquæ cinnamomi 3 iss. M. | Bruise the leaves and apply the
poultice to the epigastrium.
(Must be removed as soon as
sickness takes place.) |
| 203. R Cupri sulphatis gr. x.
Aquæ 3 iss. Ft. h. | |
| 204. R Sinapis pulveris 3 ss.
Aquæ 3 iv.
(In cases of poisoning.) | |

12. DIAPHORETICS.

There are also two classes of diaphoretics; the one consisting of stimulants, the other of depressents. Both classes are comprised in the following formulæ:—

Diaphoretics in the form of Draught.

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| 207. ℞ Liquoris ammoniæ acetatis 3 iij.
Aquæ camphoræ ℥ iss. M.
208. ℞ Potassæ nitratis gr. xx.
Vini antimonialis 3 ss.
Liq. ammoniæ acet. 3 ij.
Aq. menthæ pip. ℥ iss. M.
209. ℞ Ammoniæ carbonatis gr. x.
Spiritus chloroformi 3 i.
Aquæ ℥ iss. M. | 210. ℞ Spiritus ætheris nitrosi 3 i.
Liq. ammoniæ acet. 3 ij.
Syrupi hemidesmi 3 i.
Aq. ℥ iss. M.
211. ℞ Potassæ nitratis 3 ss.
Tincturæ opii ℥ xv.
Mist. amygd. ℥ iss. M.
212. ℞ Træ. guaiaci ammon. 3 iss.
Tincturæ opii ℥ v.
Aquæ pimentæ ℥ iss. M. |
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Diaphoretics in the form of Powders.

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| 213. ℞ Pulv. ipecacuanhæ gr. x.
214. ℞ Pulv. ipecacuanhæ co. gr. x.
Antimonii tartarati gr. ½.
M. | 215. ℞ Pulv. ipecacuanhæ gr. i.
Pulv. antimonialis gr. x.
Sacchari gr. vi. M. |
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As a hypodermic injection.

From $\frac{1}{6}$ to $\frac{1}{10}$ of a grain of nitrate or hydrochlorate of pilocarpine in a few drops of water (not officinal).

13. EXPECTORANTS.

There are also two classes of expectorants; the one stimulant, the other depressent. Expectorants of both classes are to be found in the following preparations and formulæ:—

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| 1. Acidum benzoicum | dose gr. v. to gr. xxx. |
| 2. Ammoniacum | “ gr. v. — gr. c. |
| 3. Ammoniaci mistura | “ ℥ ss. — ℥ iss. |
| 4. Antimonium tartaratum | “ gr. ½ — gr. ¼. |
| 5. Balsamum Peruvianum | “ 3 ss. — 3 i. |
| 6. Balsamum toltutanum | “ 3 ss. — 3 i. |
| 7. Benzoinum | “ gr. xx. — gr. l. |
| 8. Benzoini composita tinctura (Friar's balsam) | “ 3 ss. — 3 ij. |
| 9. Galbanum | “ gr. x. — gr. l. |
| 10. Ipecacuanhæ pulvis | “ gr. i. — gr. v. |

11. Ipecacuanhæ vinum	dose ℥x. — 3 ss.
12. Ipecacuanhæ pulvis composita	“ gr. ij. — gr. v.
13. Lobelia inflata	“ gr. i. — gr. v.
14. Lobeliæ tinctura	“ ℥x. — 3 ss.
15. Lobeliæ ætherea tinctura	“ ℥x. — 3 ss.
16. Scillæ pilula composita	“ gr. v. — gr. x.
17. Scillæ syrupus	“ 3 i. — 3 ij.
18. Scillæ tinctura	“ ℥x. — 3 ss.
19. Senegæ infusum	“ 3 i. — 3 ij.
20. Senegæ tinctura	“ 3 i. — 3 ij.
21. Tinctura tolutana	“ ℥xx. — ℥xl.
22. Vinum antimoniale	“ 3 ss. — 3 i.

Expectorants in the form of Draughts.

216. R Ammon. carbonatis gr. Spiritus chloroformi 3 ss. Decocti senegæ 3 iss. M.	Aquæ cinnnamomi 3 iss. Fiat emulsio.
217. R Balsami Peruviani 3 ss. Glycerini 3 i. Mist. amygdalæ 3 iss.	222. R Liquoris ammoniæ acetatis 3 iij. Syrupi scillæ 3 i. Decocti senegæ 3 i. M.
218. R Ammoniæ carbonatis, Ammon. benzoatis āā gr. v. Vini ipecacuanhæ ℥x. Decocti senegæ 3 iss. M.	223. R Træ. lobeliæ æthereæ 3 ss. Tincturæ scillæ 3 ss. Aquæ camphoræ 3 iss. M.
219. R Vini ipecacuanhæ ℥x. Syrupi papaveris 3 i. Spiritus ammon. arom. 3 ss. Aquæ camphoræ 3 iss. M.	224. R Vini antimonialis ℥xl. Liquoris ammon. acet. 3 i. Oxymellis scillæ 3 i. Aquæ pimentæ 3 i. M.
220. R Syrupi scillæ f 3 ss. Misturæ ammoniaci 3 iss. M.	225. R Vini ipecacuanhæ ℥xl. Potassæ bicarbonatis gr. xx. Aquæ 3 iss. M. (to be taken with a table- spoonful of lemon- juice).
221. R Balsami copaibæ 3 ss. Vitelli ovi 3 i.	

Expectorants in the form of Pills.

226. R Pilulæ scillæ co. gr. v. Fiat Pilula.	Mucilaginis acaciæ gr. ij. Fiant pilulæ duæ.
227. R Pil. ipecacuanhæ cum scilla gr. v. Fiat pil.	229. R Pilulæ scillæ compositæ, Extracti conii āā gr. v. Fiant pilulæ duæ.
228. R Antimonii tartarati gr. ½. Pul. ipecacuanhæ co. gr. viij.	

14. DEMULCENTS.

1. Acaciæ gummi. Mucilago Acaciæ.
2. Amygdalæ (dulces). Pulvis amygdalæ compositus. Mistura amygdalæ. Oleum amygdalæ. Oleum olivæ. Cetaceum. Manna. Lac.
3. Amyli mucilago.
4. Decoctum hordei, cetrariæ, ulmi.
5. Glycyrrhizæ radix. Pulvis glycyrrhizæ. Extractum glycyrrhizæ.
6. Glycerinum.
7. Lini semen. Infusum lini.
8. Mel.
9. Rosæ caninæ confectio.
10. Syrupus floris aurantii, hemidesmi, mori, rhæados, tolutanus.
11. Tragacantha. Mucilago tragacanthæ. Pulvis tragacanthæ compositus.

* *Demulcents in the form of Draughts.*

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|---|---|
| <p>230. R Cetacei gr. c.
Vitelli ovi 3 i.
Syrupi tolutani 3 i.
Aquæ cinnam. 3 i. M.</p> <p>231. R Mannæ optimæ gr. c.
Infusi lini O.ij. M.</p> <p>232. R Mucilaginis tragacanthæ,
Lactis vaccini, ana lb. i.
Sacchari 3 i. M.</p> | <p>233. R Syrupi hemidesmi 3 ij.
Decocti hordei 3 xvij. M.</p> <p>234. R Decocti cetrariæ 3 xvij.
Syrupi mori 3 ij. M.</p> <p>235. R Decocti ulmi 3 xvij.
Confec. rosæ caninæ 3 ij.
M.</p> <p>236. R Misturæ amygdalæ 3 xvi.
Glycerini 3 iv. M.</p> |
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15. EMOLLIENTS.

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| <p>1. Decoctum papaveris.</p> <p>2. Cataplasma lini, C. fermenti.</p> <p>3. Glycerinum.</p> <p>4. Oleum amygdalæ, lini, olivæ.</p> <p>5. Unguentum cetacei simplicis.</p> | <p>6. Cera alba.</p> <p>7. Sapo, linimentum saponis, emplastrum saponis.</p> <p>8. Linimentum calcis.</p> |
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16. LAXATIVES, APERIENTS, CATHARTICS, ENEMATA.

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|--|----------------------|
| 1. Aloe Barbadosensis | dose gr. v. — gr. x. |
| 2. Aloes decoctum compositum | " 3 ss. — 3 ij. |
| 3. " Enema | " 3 x. — 3 xx. |
| 4. " extractum | " gr. v. — gr. x. |
| 5. " extractum Barb. et Socot. | " gr. v. — gr. x. |
| 6. " pilula | " gr. v. — gr. x. |

7. Aloe Socotrina	dose gr. v. — gr. x.
8. Aloes tinctura	“ 3 i. — 3 i.
9. “ vinum	“ 3 ij. — 3 vi.
10. Amygdalæ oleum	“ 3 i. — 3 ij.
11. Cambogia	“ gr. ij. — gr. v.
12. Colocynthis: extractum colocynthis com- positum	} “ gr. v. — gr. x.
13. Pilula colocynthis composita	
14. Pilula colocynthis et hyoseyami	
15. Crotonis oleum	“ ℥i. — ℥iij.
16. Elaterium	“ gr. ʒ — gr. i.
17. Extractum colocynthis compositum	“ gr. v. — gr. x.
18. Fel bovinum purificatum	“ gr. v. — gr. x.
19. Fici pulpa	“ 3 ss. — 3 i.
20. Hydrargyrum: calomelas	“ gr. i. — gr. x.
21. Hydrargyrum cum creta	“ gr. i. — gr. v.
22. Jalapæ pulvis	“ gr. v. — gr. xx.
23. Jalapæ extractum	“ gr. v. — gr. x.
24. “ pulvis compositus (gr. v. in gr. xv.)	“ gr. xv. — gr. l.
25. “ pulvis scammonii compositus (about gr. v. in gr. xv.)	} “ gr. x. — gr. xx.
26. “ resina	
27. “ tinctura	“ 3 i. — 3 ij.
28. Magnesia, et magnesia levis	“ gr. xx. — gr. l.
29. Magnesiae carbonas, et carbonas levis	“ gr. xx. — gr. l.
30. Magnesiae carbonatis liquor	“ 3 i. — 3 ij.
31. Magnesiae sulphas	“ gr. l. — 3 ss.
32. Magnesiae sulphatis enema	“ 3 xvij.
33. Manna	“ gr. l. — 3 i.
34. Pilula aloes et assafœtidæ	“ gr. v. — gr. x.
35. Pilula aloes et myrrhæ	“ gr. v. — gr. x.
36. Pilula calomelanos composita	“ gr. v. — gr. x.
37. Pilula cambogiæ composita	“ gr. v. — gr. x.
38. Pilula hydrargyri	“ gr. v. — gr. x.
39. Pilula rhei composita	“ gr. v. — gr. x.
40. Podophylli pulvis	“ gr. x. — gr. xx.
41. Podophylli resina	“ gr. ¼ — gr. i.
42. Potassæ sulphas	“ gr. xv. — gr. lx.
43. Potassæ tartras	“ gr. c. — gr. cc.
44. Potassæ tartras acida	“ gr. l. — gr. c.
45. Pruni pulpa	“ 5 ss. — 3 i.
46. Rhamni succus	“ 3 ss. — 3 i.
47. Rhamni syrupus	“ 3 i. — 3 iv.
48. Rhei extractum	“ gr. x. — gr. xx.
49. Rhei infusum	“ 3 i. — 3 iv.

50. Rhei pilula composita	dose gr. v. — gr. x.
51. Rhei pulvis	" gr. xv.—gr. l.
52. Rhei pulvis compositus	" gr. xxx.—gr. cc.
53. Rhei syrupus	" 3 i. — 3 iv.
54. Rhei tinctura	" 3 ij. — 3 i.
55. Ricini oleum	" 3 ij. — 3 i.
56. Scammoniæ radicis pulvis	" gr. x. — gr. xx.
57. Scammoniæ resina	" gr. v. — gr. x.
58. Scammonii confectio	" gr. xx.—gr. l.
59. " mistura	" 3 i. — 3 ij.
60. " pulvis compositus (gr. iv. in gr. viij.)	" gr. x. — gr. xx.
61. ————extractum colocynthidis compositum	" gr. v. — gr. x.
62. ————pilula colocynthidis composita	" gr. v. — gr. x.
63. ————pilula colocynthidis, et hyoseyami	" gr. v. — gr. x.
64. Scammonium	" gr. v. — gr. x.
65. Senna Alexandrina, et Indica	
66. Sennæ confectio	" gr. l. — gr. ccc.
67. Sennæ infusum	" 3 i. — 3 ij.
68. Sennæ syrupus	" 3 i. — 3 iv.
69. Sennæ tinctura	" 3 i. — 3 iv.
70. Sodæ et potassæ tartras	" gr. c. — 3 ss.
71. Sodæ sulphas	" gr. cc.— 3 i.
72. Sodii chloridum	" gr. c. — 3 ss.
73. Sulphur, præcipitatum et sublimatum	" gr. cc.— 3 ss.
74. Terebinthinæ enema	" 3 xvi.
75. Terebinthinæ oleum	" 3 ss. — 3 ij.

Laxatives, Aperients, Cathartics, in the form of Draught.

237. R̄ Potassæ tartratis gr. c. Decocti aloes comp. f 3 iss. M.	242. R̄ Magnesiæ carbonatis gr. x. Magnesiæ sulphatis gr. l. Tincturæ zingiberis ℥xv. Aquæ menthæ piperitæ 3 iss. Fiat haustus.
238. R̄ Olei crotonis ℥i. Olei ricini f 3 i. Ft. h.	243. R̄ Tincturæ cardamomi compositæ 3 ij. Magnesiæ carbonatis gr. x. Infusi rhei 3 iss. Ft. h.
239. R̄ Magnesiæ sulphatis gr. cc. Mannæ gr. l. Infusi sennæ 3 iss. Ft. h.	244. R̄ Infusi rosæ acidæ 3 iss. Magnesiæ sulphatis gr. c. Syrupi rosæ 3 i. M.
240. R̄ Pulveris rhei gr. x. Potassæ tartratis 3 ss. Infusi sennæ 3 iss. Tincturæ sennæ 3 ij. Ft. h.	245. R̄ Potassæ tartratis gr. c. Mannæ gr. lx.
241. R̄ Sodæ et potassæ tart. 3 ss. Aq. menthæ pip. 3 iss. Ft. h.	

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| <p>245. R Aquæ pimentæ ʒ iss.
Olei ricini,
Olei terebinthinæ,
Mucil. acaciæ aa ʒ ss. M
247. R Tincturæ sennæ 3 ij.
Vini aloes 3 ij.</p> | <p>Syrupi zingiberis 3 i.
Aq. menthæ pip. 3 iss. M.
248. R Olei ricini ʒ ss.
Vitelli ovi unius
Aquæ carui ʒ i.</p> |
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Laxatives, Aperients, Cathartics, in the form of Pills.

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|---|---|
| <p>249. R Calomelanos gr. i.
Pil. coloc. et hyos. gr. viij.
Olei anethi ʒ i.
In pilulas duas divide.
250. R Extr. colocynth. comp.
Calomelanos aa gr. v.
Fiant pilulæ duæ.
251. R Resinæ scammoniaë,
Calomelanos,
Ext. colocynthidis comp.
aa gr. iiss.
Olei carui quantum suf.
Fiant pilulæ duæ.</p> | <p>252. R Olei crotonis ʒ i.
Pulv. aloes q. s. M. ft. pil.
253. R Resinæ podophylli gr. ss.
Extr. colocynthidis comp.
gr. v.
Fiat pilula.
254. R Pilulæ hydrargyri gr. iij.
Extracti colocynthidis com-
positi gr. vij.
M. Ft. pil. ij.</p> |
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Laxatives, etc., in the form of Powder.

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| <p>255. R Pulv. jalapæ compositi 3 ss.
Calomelanos gr. iij.
Ft. pulv.
256. R Pulv. rhei gr. xx.
Potassæ bitartratis gr. l.
Pulv. aromatici gr. v. M.</p> | <p>257. R Pulv. rhei gr. xx.
Calomelanos gr. iij.
Pulveris aromatici gr. v.
M.
258. R Pulv. scammoniaë co. gr. x.
Calomelanos gr. v. M.</p> |
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Laxatives, etc., in the form of Electuary.

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| <p>259. R Confectio sulphuris gr. c.
Pulveris cinnam. co. gr. xx.
M.</p> | <p>260. R Confec. scammonii gr. xxx.
Resinæ podophylli gr. ʒ
M.</p> |
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17. PURGATIVE ENEMATA.

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| <p>1. Enema aloes.
2. Enema magnesiæ sulphatis.
261. R Infusi anthemidis f ʒ x.
Sodæ sulphatis ʒ i. M.
262. R Ext. colocynthidis co. gr. xl.
Infusi sennæ ʒ xij. M.</p> | <p>3. Enema terebinthinæ.
4. Enema assafœtidæ.
263. R Decocti hordei ʒ x.
Ovi vitelli unius.
Olei ricini ʒ i. Ft. enema.
264. R Sodii chloridi ʒ ij.
Decocti hordei O.i. Ft. E.</p> |
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18. DIURETICS.

(a.) *Saline.*

1. Ammoniæ acetatis liquor	dose 3 ij.	— 3 vi.
2. Ammoniæ benzoas	" gr. x.	— gr. xx.
3. Lithiæ carbonas	" gr. iij.	— gr. viij.
4. Lithæ citras	" gr. v.	— gr. xv.
5. Potassæ carbonas	" gr. x.	— gr. xxx.
6. Potassæ acetas	" gr. x.	— } gr. l.
7. Potassæ bicarbonas	" gr. x.	
8. Potassæ chloras	" gr. x.	— gr. xx.
9. Potassæ citras	" gr. xxx.	— gr. l.
10. Potassæ liquor	" ℥xv.	— ℥lx.
11. Potassæ nitras	" gr. x.	— gr. l.
12. Potassæ tartras acida	" gr. xxx.	— gr. c.
13. Potassæ tartras	" gr. xxx.	— gr. c.
14. Sodæ liquor	" ℥xv.	— ℥l.
15. Sodæ acetas	" gr. xxx.	— gr. c.
16. Sodæ bicarbonas	" gr. x.	— gr. l.
17. Sodæ citro-tartras effervescens	" gr. lx.	— gr. cc.
18. Sodæ et potassæ tartras (S. tartarata)	" gr. c.	— gr. ccl.

(b) *Vegetable.*

19. Ætheris nitrosi spiritus	dose 3 ss.	— 3 ij.
20. Amoraciæ spiritus compositus	" 3 i.	— 3 ij.
21. Buchu infusum	" f 3 i.	— f 3 ij.
22. Buchu tinctura	" 3 ss.	— 3 ij.
23. Copaiba	" ℥xx.	— 3 ss.
24. Copaibæ oleum	" ℥iij.	— ℥xx.
25. Cubebæ pulvis	" gr. xx.	— gr. l.
26. Cubebæ oleum	" ℥iij.	— ℥xx.
27. Digitalinum	" gr. ʒʒ	— gr. sʒ
28. Digitalis pulvis	" gr. ½	— gr. ss.
29. Digitalis infusum	" 3 ss.	— 3 vi.
30. Digitalis tinctura	" ℥x.	— ℥xxx.
31. Juniperi oleum	" ℥iv.	— ℥vi.
32. Juniperi spiritus	" 3 iss.	— 3 i.
33. Pareiræ decoctum	" 3 i.	— 3 ij.
34. " extractum liquidum	" 3 ss.	— 3 ij.
35. Sabinæ pulvis	" gr. iv.	— gr. x.
36. Sabinæ oleum	" ℥i.	— ℥iij.
37. Sabinæ tinctura	" ℥xx.	— 3 i.
38. Sapo duris et mollis	" gr. x.	— gr. xx.
39. Scillæ pulvis	" gr. v.	— gr. xx.

40. Scillæ syrupus	dose 3 i.	— 3 ij.
41. Scillæ tinctura	“ ʒxv.	— 3 i.
42. Scillæ pilula composita	gr. v.	— gr. x.
43. Scoparii succus	“ 3 ss.	— 3 ij.
44. Senegæ decoctum	“ 3 i.	— 3 ij.
45. Taraxaci decoctum	“ 3 i.	— 3 ij.
46. Taraxaci extractum	gr. x.	— gr. xxx.
47. Taraxaci succus	“ 3 ij.	— 3 i.
48. Terebinthinæ canadensis	gr. x.	— gr. xl.
49. Terebinthinæ oleum	“ 3 ss.	— 3 ij.
50. Terebinthinæ confectio	gr. lx.	— gr. cl.
51. Uvæ ursi infusum	“ 3 i.	— 3 ij.

(c.) Animal.

52. Cantharidis tinctura	dose ʒv. to ʒxx.
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Diuretics in the form of Draught, etc.

265. R Ammonia benzoatis gr. x. Ext. pareiræ liquidī 3 i. Decocti pareiræ 3 iss. M.	269. R Sodæ et potas. tart. gr. lx. Spiritus juniperi 3 i. Succi scoparii 3 ss. Decocti taraxaci 3 iss. M.
266. R Lithiæ citratis gr. x. Acidi citrici gr. xx. Syrupi aurantii 3 ss. Aquæ f 3 ij. Solve. To be taken in a state of effervescence with gr. xiv. bicarbonate of soda dissolved in f 3 ij. water.	270. R Copaibæ 3 ss. Vitelli ovi q. s. Sacchari 3 i. Aquæ menthæ virid. 3 iss. M. fiat emulsio.
267. R Potassæ acetatis gr. xl. Infusi digitalis 3 ij. Sp. ætheris nitrosi 3 i. Decocti taraxaci 3 iss. ft. H.	271. R Infusi buchu 3 iss. Spiritus juniperi co. 3 i.
268. R Pot. tartratis acidæ 3 ss. Corticis limonis, et sacchari, q. s. Aquæ ferventis O.ij. (For a common drink.)	272. R Taraxaci succi 3 j. 273. R Tincturæ cantharidis ʒx. Decocti pareiræ 3 iss. M. 274. R Træ. seminis colchici 3 ss. Potassæ acetatis gr. lx. Aquæ fœniculi 3 iss. M.

Diuretics in the form of Pill, Powder, etc.

275. R Pilulæ scillæ comp. gr. x. Calomelanos gr. ¼ Olei juniperi ʒi. Ft. pil. ij.	Pilulæ scillæ co. gr. vi. M. et in pilulas ij. divide.
276. R Pulv. digitalis gr. i.—ij. Hydrargyri pilulæ gr. ij.	277. R Digitalini gr. ʒv. Pulveris scillæ, Extracti taraxaci ana gr. v. Misce et ft. pil. ij.

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|---|--|
| 278. R Potassæ nitratis gr. x.
Potassæ tart. acidæ gr. xx.
Fiat pulvis. | Olei cubebæ ℥j.
Pulveris glycyrrhizæ q. s.
Fiat bolus. |
| 279. R Olei cubebæ ℥xx.
Saponis duri gr. x.
Pulv. glycyrrh. q. s. ut
fiant boli duo. | 281. R Extracti taraxaci ℥ ss.
Pulveris scillæ gr. xl.
Confec. terebinthinæ ℥ ss.
Suc. taraxaci, quantum suf.
ut fiat electuarium. |
| 280. R Terebinthinæ Canaden-
sis gr. v. | |

19. ANTHELMINTICS.

- | | | | |
|---|---|---|--|
| 1. Calcis liquor (as an enema)
2. Kusso infusum
3. Filicis extractum liquidum
4. Filicis maris pulvis
5. Granati corticis decoctum
6. Granati corticis pulvis
7. Kamela
8. Mucuna pruriens (<i>non-officinal</i>) . . .
9. Pulvis scammonii compositus
10. Quassiæ infusum (as an enema) . . .
11. Santoninum
12. Terebinthinæ oleum | dose ℥ ij. to ℥ iv.
“ ℥ iv. — ℥ viij.
“ 3 i. — 3 iij.
“ gr. xx. — gr. c.
“ ℥ ij. — ℥ x.
“ gr. xx. — gr. c.
“ gr. xxx. — gr. c.
“ gr. xx. — ℥ ss.
“ gr. v. — gr. xx.
“ ℥ ij. — ℥ iv.
“ gr. i. — gr. vi.
“ 3 ss. — ℥ ij. | 282. R Olei terebinthinæ ℥ i.
Decocti hordei ℥ i. M. ft. h.

283. R Mucunæ pruriens gr. x.
Theriacæ 3 i. M.

284. R Extracti filicis liquidi 3 i. | Pulv. tragacanth. co. gr. l.
Aq. menthæ pip. ℥ ij. F. h.

285. R Santonini gr. ij.
Pulv. scammonii comp.
gr. viij. Fiat pulvis. |
|---|---|---|--|

20. EMMENAGOGUES.

- | | |
|---|---|
| 1. Rutæ oleum dose ℥ ij. to ℥ v.
2. Sabinæ oleum dose ℥ i. to ℥ v. | 3. Sabinæ tincturæ dose ℥ x. to 3 i.
4. Chalybeate tonics. |
| 286. R Ferri et ammon. cit. gr. x.
Tincturæ sabinæ ℥ xx.
Aquæ cinnamomi ℥ iss. M. | Pulveris aloes gr. ij.
Fiant pil. duæ. |
| 287. R Olei rutæ ℥ iv.
Pulveris myrrhæ gr. iv. | 288. R Olei sabinæ ℥ iv.
Saponis q. s.
Fiant pil. duæ. |

21. ANTACIDS.

1. Ammoniæ liquor, acetas, carbonas, benzoas, phosphas.
2. Ammoniæ spiritus aromaticus.
3. Guaiaci tinctura ammoniata.
4. Valerianæ tinctura ammoniata.
5. Calcis liquor, liquor saccharatus; calcis carbonas præcipitata; calcis liquor chlorinata; creta præparata.
6. Cretæ mistura, pulvis aromaticus, pulvis aromaticus cum opio.
7. Lithiæ carbonas, citras.
8. Potassæ liquor; acetas; carbonas; bicarbonas; citras; tartras; tartras acida.
9. Sodæ liquor; carbonas; carbonas exsiccata; bicarbonas; sodæ et potassæ tartras; citro-tartras effervescens.
10. Magnesia; magnesia levis; magnesiæ carbonas; carbonas levis.
11. Pulvis rhei compositus.
12. Sapo mollis. durus.

(For Formulæ, see Diuretics, etc.)

22. ANTISEPTICS AND DISINFECTANTS.

- | | |
|--|-----------------------------------|
| 1. Acidum aceticum. | 7. Kreasotum. |
| 2. Acidum carbolicum. | 8. Liquor calcis chlorinatae. |
| 3. Acidi carbolicæ glycerinum. | 9. Liquor chlorinii. |
| 4. Carbo. | 10. Liquor sodæ chlorinatae. |
| 5. Carbo animalis. | 11. Pix liquida. |
| 6. Cataplasma carbonis, fermenti,
sodæ chlorinatae. | 12. Potassæ permanganatis liquor. |
| | 13. Zinci chloridum. |

23. ALTERATIVES AND THEIR DOSES.

1. Acidum nitro-hydrochloricum dilutum; acidum arseniosum $\frac{1}{2}$ to $\frac{1}{10}$ gr.; liquor arsenicalis ℥ij. to ℥x.; liquor arsenici hydrochloricus ℥ij.—℥viij.; liquor sodæ arseniatis ℥v. to ℥j.
2. Antimonium sulphuratum; antimonium tartaratum; vinum antimoniale (gr. $\frac{1}{2}$ in 3 i.); antimonii oxidum gr. i. to gr. v.; pulvis antimonialis gr. v. to gr. x.
3. Brominium dose $\frac{1}{2}$ to gr. ij. Potassii bromidi gr. iij. to 3 i.
4. Dulcamaræ infusum 3 i. — 5 ij. (inert).
5. Ferri arsenias gr. $\frac{1}{10}$ —gr. $\frac{1}{2}$.
6. Ferri iodidum gr. i. to gr. x.; syrupus ferri iodidi (gr. ivss. in 3 i.); pilula ferri iodidi gr. v. to gr. x.
7. Hemidesmi syrupus 3 i. (inert).

8. Hydrargyrum cum cretâ gr. iij. to gr. viij.; H. perchloridum gr. $\frac{1}{8}$ to gr. $\frac{1}{4}$.
9. Hydrargyri iodidum rubrum gr. $\frac{1}{8}$ to gr. $\frac{1}{4}$; —iodidum viride gr. i. to gr. iij.; —oxidum rubrum; pilula; linimentum; unguentum; unguentum hydrargyri ammoniati; unguentum hydrargyri iodidi rubri; unguentum hydrargyri nitratis; unguentum hydrargyri oxidi rubri; hydrargyri emplastrum; emplastrum ammoniaci cum hydrargyro. Calomelas gr. $\frac{1}{4}$ to gr. ij., pilula calomelanos composita, unguentum calomelanos.
10. Iodinii tinctura ℥v. to ℥xxx.; linimentum; unguentum compositum.
11. Potassii iodidi gr. i. to gr. x.; emplastrum; unguentum; unguentum iodinii compositum; tinctura iodinii; linimentum iodinii.
12. Morrhue oleum.
13. Sarsæ decoctum compositum; extractum liquidum.

Alteratives in the form of Draught.

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|--|---|
| <p>289. ℞ Liq. hydrarg. perchlor. 3 i.
Tinct. chloroformi co. 3 ss.
Aquæ menthæ pip. 3 iss.
M.</p> | <p>292. ℞ Liquoris arsenicalis ℥v.
Tinct. chlorof. co. ℥xx.
Infusi aurantii 3 iss.
Ft. h.</p> |
| <p>290. ℞ Potassii iodidi gr. v.
Infusi aurantii 3 iss.
Ft. h.</p> | <p>293. ℞ Liq. sodæ arseniatis ℥v.
Sodæ bicarbonatis gr. lx.
Aq. pimentæ 3 iss. Ft. h.</p> |
| <p>291. ℞ Syrupi ferri iodidi 3 i.
Decocti sarsæ co. 3 iss.
Ft. h.</p> | <p>294. ℞ Liq. arsenici hydrochlorici
℥iij.
Aquæ anethi 3 iss. Ft. h.</p> |

Alteratives in the form of Pill and Powder.

- | | |
|---|---|
| <p>295. ℞ Calomelanos gr. iij.
Pil. saponis comp. gr. xvij.
Fiant pil. xij.</p> | <p>298. ℞ Calomelanos gr. iij.
Pulv. opii gr. i.
Pulv. glycyrrhizæ gr. lx.
Fiant pulveres decem (One for a dose).</p> |
| <p>296. ℞ Hydrarg. iodidi rubri gr. i.
Extracti sarsæ 3 i.
Fiant pil. xij.</p> | <p>299. ℞ Hydrarg. c. cretâ gr. i.
Sacchari albi gr. v.
Fiat pulvis.</p> |
| <p>297. ℞ Hydrarg. c. cretâ gr. xx.
Antimonii tartarati gr. i.
Sacchari gr. lx.
Fiant pulveres decem.</p> | <p>300. ℞ Ferri arseniatis gr. i.
Pulv. cinnam. co. gr. lx.
Fiant pulveres decem.</p> |

Alteratives in the form of Bath.

301. ℞ Potassii sulphidi 3 x.
Aquæ calidæ C.x.
Fiat balneum.

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- Acne. Pimple (*ἄχνη*, scurf), ii. 277.
- Ægophony. (*αἶξ*, a goat, *φωνή*, the voice), i. 149, ii. 114.
- Amaurosis, *is*, *f.* Blindness (*ἄμαυρός*, obscure), ii. 248.
- Amblyopia, *æ*, *f.* Impaired vision (*ἄμβλυσ*, weak, *ὤψ*, the eye), ii. 37.
- Amenorrhœa, *æ*, *f.* (*α*, priv., *μῆν*, a month, *ῥέω*, to flow), ii. 207.
- Anæmia, *æ*, *f.* Want of blood (*α*, priv., *αἷμα*, blood), i. 240.
- Anæsthesia, *æ*, *f.* (*α*, priv., *αἰσθησις*, sensation), ii. 26.
- Anasarca, *æ*, *f.* (*ἀνά*, through, *σάρξ*, the flesh), i. 253.
- Aneurism. (*ἀνευρύνω*, to dilate), ii. 83.
- Angina, *æ*, *f.* Choking (*ἄγχω*, to throttle), ii. 66.
- Anorexia, *æ*, *f.* (*α*, not, *ὄρεξις*, an appetite), want of appetite, i. 179.
- Anuria, *æ*, *f.* Suppression of urine (*α*, priv., *οὔρεω*, to pass urine), ii. 200.
- Aphonia, *æ*, *f.* Loss of voice (*α*, priv., *φωνή*, sound), ii. 92.
- Aphtha, *æ*, *f.* Thrush (*ἀφθά*, fr. *ἄπτω*, to inflame), ii. 129.
- Apnœa, *æ*, *f.* Breathlessness (*α*, priv., *πνέω*, to breathe), i. 30.
- Apoplexia, *æ*, *f.* (*ἀποπλεξία*, fr. *ἀποπλήσσω*, to strike down). i. 69, ii. 13.
- Arachnitis, *idis*, *f.* (*ἀράχνη*, a spider's web, and *itis*), ii. 4.
- Ascaris, *idis*, *f.* (*ἄσκαρις*, fr. *ἄσκαρίζω*, to jump), ii. 295.
- Ascites, *æ*, *m.* Dropsy of the belly (*ἀσκίτης*, fr. *ἄσκος*, a sack), ii. 168.
- Asphyxia. Apparent death (*α*, priv., *σφύξις*, the pulse), i. 30.
- Asthenia. (*α*, priv., *σθένος*, strength), i. 29, ii. 74.
- Asthma, *itis*, *n.* (*ἄσθμα*, fr. *ἀσθμάζω*, to gasp), ii. 103.
- Astigmatism, *Astigmatismus*, *i*, *m.* (fr. *α*, not, *στίγμα*, a spot), ii. 249.
- Atavism. *Atavismus*, *i*, *m.* (*αἰῶν*, a grandfather), i. 3.
- Atheroma, *itis*, *n.* A morbid deposit (*ἀθάρη*, porridge), i. 75, ii. 82.
- Atrophy. Wasting (*α*, priv., *τροφή*, nourishment), i. 74.
- Bronchitis, *idis*, *f.* (*βρόγχος*, the windpipe, *itis*), ii. 99.
- Bronchocele, *es*, *f.* (*βρόγχος*, the windpipe, *κήλη*, a tumor), ii. 137.
- Bulimia, *æ*, *f.* (*βοῦ*, excess, *λιμὸς*, hunger), i. 33.
- Cachexia, *æ*, *f.* Bad habit of body (*κακὴ*, bad, *ἔξις*, habit), i. 243.
- Calculus, *i*, *m.* (Lat. *calculus*, a little stone), ii. 177, ii. 193.

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- Carcinoma, *atis, n*. Cancer (*καρκίνος*, a crab), i. 79.
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- Catamenia, *orum, pl., n*. (*κατὰ*, according to, *μῆν*, the month), ii. 207.
- Catarrhus, *i, m*. A cold (*κατὰ*, down, *ρέω*, to flow), ii. 97.
- Cephalalgia, *æ, f*. Headache (*κεφαλῇ*, the head, *ἄλγος*, pain), ii. 1.
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- Chloasma, *ātis, n*. (*χλοάζω*, to be green), ii. 259.
- Chlorosis, *is, f*. Green sickness (*χλωρός*, green), i. 243.
- Cholera, *æ, f*. (*χολή*, bile, *ρέω*, to flow), ii. 162.
- Chorea, *æ, f*. (*χορεία*, a dancing), ii. 43.
- Choroiditis, *idis, f*. (*χόριον*, skin, *εἶδος*, likeness, and *itis*), ii. 240.
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- Cirrhosis, *is, f*. Hob-nail liver (*κίρρός*, *αὐ*, *δν*, tawny), ii. 172.
- Clonic, *Clonicus, a, um*. (*χλόνος*, commotion), i. 91.
- Colica, *æ, f*. (*κῶλον*, the colon), ii. 158.
- Coma, *ātis, n*. Complete loss of sensation and voluntary motion (*κῶμα*, *ατος*, *τὸ*, deep sleep), i. 192.
- Congestion. Fulness of blood (*congestio*, fr. *congero*, to heap up), i. 62.
- Corneitis, *idis, f*, and *Cornea, æ, f*. (*cornu*, a horn, *itis*), ii. 235.
- Cyanosis, *is, f*. Blue disease (*κύανος*, blue), ii. 80.
- Cystitis, *idis, f*. (*κύστις*, a bladder, *itis*), ii. 204.
- Delirium, *i, n*. Wandering (*deliro*, to rave), i. 105.
- Dermmycosis, *is, f*, a contraction for dermato-mycosis. (Fr. *δέρμα*, *ατος*, *τὸ*, the true skin, *μύκης*, a fungus), ii. 262.
- Diabetes, *is m*. (*διὰ*, through, *βαίνω*, to pass), ii. 201.
- Diaphoretic, that which increases a flow of the sweat (*διαφορέω*, to dissipate, disperse), ii. 328.
- Diarrhœa, *æ, f*. (*διὰ*, through, *ρέω*, to flow), i. 221.
- Diphtheria, *æ, f*. (*διφθερόω*, to cover with skin), i. 306.
- Diuretic, that which increases the flow of urine (*δια οὔρον*, by way of the urine).
- Dropsy. (*ὑδρωψ*, fr. *ὑδωρ*, water), i. 253.
- Dysentery, *Dysentæria, æ, f*. (*δύς*, with difficulty, *έντερον*, the bowels), ii. 152.
- Dysmenorrhœa, *æ, f*. (*δύς*, difficult, *μῆν*, a month, *ρέω*, to flow), ii. 209.
- Dyspepsia, *æ, f*. (*δύς*, difficult, *πέπτω*, to concoct), ii. 143.
- Dysphagia (*δύς*, with difficulty, *φάγω*, to eat), ii. 84.
- Dysphonia, *æ, f*. (*δύς*, difficult, *φωνή*, voice), ii. 133.
- Dyspnœa, *æ, f*. (*δύς*, with difficulty, *πνέω*, to breathe), i. 173.
- Dysuria, *æ, f*. (*δύς*, with difficulty, *οὔρέω*, to pass urine), ii. 205.

- Ecthyma, *ātis*, *n.* Cutaneous pustules (ἐκθύω, to break out), ii. 271.
- Eczema, *ātis*, *n.* Running scab (ἐκξέω, to boil up), ii. 271.
- Electrode. (ἤλεκτρον, amber, ὁδός, a way), ii. 47.
- Elephantiasis, *is*, *f.* (ἐλεφαντίασις, fr. ἐλέφας, an elephant).
- Embolism, *Embolismus*, *i*, *m.* (fr. ἐμβάλλω, to drive in), i. 74.
- Emphysema, *ātis*, *n.* (ἐμφύσημα, fr. ἐμφυσάω, to inflate), ii. 106.
- Emprosthotos, *adj.* (ἐμπροσθεν, forwards, τείνω, to bend), bent forwards, ii. 46.
- Empyema, *ātis*, *n.* Pus (ἐν, within, πύον, pus), ii. 124.
- Emunctory, *Emunctorium*, *i*, *n.* (fr. *emungo*, to carry off.)
- Encephalitis, *īdis*, *f.* (ἐν, in, κεφαλή, head, *itis*), ii. 4.
- Emmenagogue, that which excites a flow of the menses (ἐν, at, μήνη, the month; ἀγώ, to induce), ii. 336.
- Endemic. Indigenous (ἐν, among, δῆμος, a people; or ἐν, in, δῆμος, a district), i. 277, ii. 196.
- Endocarditis, *īdis*, *f.* (ἐνδον, within, καρδιά, the heart, *itis*), ii. 73.
- Enteritis, *īdis*, *f.* (έντερον, the bowels, *itis*), ii. 150.
- Entozoa, *pl.*, *Entozoon*, *i*, *n.* (έντος, within, ζῶον, an animal), ii. 81.
- Enuresis, *is*, *f.* Incontinence of urine (ἐν, in, ούρεω, to pass urine), ii. 205.
- Ephelis, *īdis*, *f.* Freckles (ἐφηλῖς, fr. ἐπὶ, and ἥλιος, the sun), ii. 289.
- Epidemic. Prevalent (ἐπὶ, among, δῆμος, a people), i. 269.
- Epidermycosis, *is*, *f.*, contraction for epidermato-mycosis. (fr. ἐπι, δερμῖς, the cuticle, μύκης, a fungus), ii. 259-262.
- Epilepsy. Falling sickness (ἐπιληψία; ἐπιλαμβάνω, to seize upon), ii. 54.
- Equinia, *æ*, *f.* Glanders (*equus*, a horse), i. 320.
- Erysipelas, *ātis*, *n.* (ερυσίπελας, fr. ἐρίω, to draw, πέλας, near), i. 255.
- Erythema, *ātis*, *n.* Inflammatory blush (ερυθαίνω, to redden), ii. 268.
- Exanthemata, *pl.*, *Exanthema*, *ātis*, *n.* (ἐξανθέω, to break out into red spots), i. 288, ii. 268.
- Febricula, *æ*, *f.* (dim. of *febris*), i. 247.
- Febris, *is*, *f.* (*ferveo*, to be hot), i. 259.
- Framboesia, *æ*, *f.* The yaws (*framboise*, Fr., a raspberry), ii. 285.
- Gangræna, *æ*, *f.* (γάγγραινα, fr. γράω, to eat), i. 59.
- Gastralgia, *æ*, *f.* Pain in the stomach (γαστήρ, the stomach, ἄλγος, pain), ii. 143.
- Gastritis, *īdis*, *f.* (γαστήρ, the stomach, *itis*), ii. 142.
- Gastrodynia. (γαστήρ, the stomach, ὁδύνη, pain, *itis*), ii. 143.
- Gastro-enteritis, *īdis*, *f.* (γαστήρ, the stomach, έντερον, the bowels, *itis*), ii. 161.

- Gingivitis, *idis*, *f.* (*gingivæ*, the gums, *itis*), ii. 133.
- Glaucoma, *atis*, *n.* (fr. *γλαυκός*, sea-green), ii. 246.
- Glossitis, *idis*, *f.* (*γλωσσα*, the tongue, *itis*), ii. 134.
- Gonorrhœa, *æ*, *f.* (*γόνη*, seed, *ρέω*, to flow), ii. 221.
- Hæmatemesis, *is*, *f.* (*αἷμα*, blood, *ἔμεσις*, vomiting), ii. 141.
- Hæmatocele. (*αἷμα*, blood, *κῆλη*, a tumor), ii. 217.
- Hæmaturia, *æ*, *f.* Bloody urine (*αἷμα*, blood, *οὐρέω*, to void urine), i. 126, ii. 195.
- Hæmoptysis, *is*, *f.* Spitting of blood (*αἷμα*, blood, *πτύσις*, spitting), i. 186, ii. 113.
- Hæmorrhage. Bleeding (*αἷμα*, blood, *ρήγνυμι*, to burst forth), i. 251.
- Hæmorrhoides. Hæmorrhoids, *idis*, *f.* (*αἷμα*, blood, *ρέω*, to flow), ii. 260.
- Hectic. A remittent fever (*ἐκτικὸς*, habitual), i. 311.
- Hemiplegia, *æ*, *f.* Palsy of one side (*ἥμισυς*, half, *πλήσσω*, to strike), ii. 28.
- Hepatitis, *idis*, *f.* (*ἥπαρ*, *ἥπατος*, the liver, *itis*), ii. 171.
- Herpes, *etis*, *m.* Tetters (*έρπω*, to creep), ii. 272.
- Homologous. (*ὁμός*, like, *λόγος*, condition.)
- Hydatid. (*ύδατις*, *ίδος*, *ή*, a small bladder, fr. *ύδωρ*,) ii. 182.
- Hydrocephalus, *i*, *m.* (*ύδωρ*, water, *κεφαλή*, head), ii. 10.
- Hydropericardium, *i*, *n.* (*ύδωρ*, water, *περι*, around, *καρδία*, the heart), ii. 72.
- Hydrophobia, *æ*, *f.* Canine madness (*ύδωρ*, water, *φόβος*, fear), ii. 48.
- Hydrops, *opis*, *m.* (fr. *ύδωρ*, water), i. 253.
- Hydrorachis, *eos*, *f.* (*ύδωρ*, water, *ράχις*, the spine), ii. 22.
- Hydrothorax, *æis*, *f.* (*ύδωρ*, water, *θώραξ*, the chest), ii. 124.
- Hyperæmia (*ύπερ*, excess, *αἷμα*, blood), i. 239.
- Hyperæsthesia (*ύπερ*, excess, *αἴσθησις*, sensation), i. 92.
- Hypertrophy (*ύπερ*, over, *τροφή*, nourishment), i. 73.
- Hypnotic, *hypnōticus*, *a*, *um.* (*ύπνος*, sleep, sleep inducing), i. 232.
- Hypochondriasis, *is*, *m.* Low spirits (*ύπὸ*, under, *χόνδρος*, cartilage), i. 110, ii. 61.
- Hysteralgia, *æ*, *f.* (*ύστέρα*, the womb, *ἄλγος*, pain), ii. 25.
- Hysteria, *æ*, *f.* Hysterics (*ύστέρα*, the womb), ii. 52.
- Hysteritis, *idis*, *f.* (*ύστέρα*, the womb, *itis*), ii. 212.
- Icterus, *i*, *m.* Jaundice (*ἰκτερός*, a yellow bird), ii. 178.
- Ichthyosis, *is*, *f.* Fish-skin (*ἰχθύα*, the scale of a fish), ii. 283.
- Idiosyncrasy (*ἴδιος*, peculiar, *σύν*, with, *κράσις*, temperament), i. 4.
- Impetigo, *inis*, *f.* Running tetters (Lat. *impetigo*, fr. *impeto*, to assail), ii. 276.
- Inflammation. (Lat. *inflammatio*, fr. *in* and *flamma*), i. 248.
- Influenza, *æ*, *f.* Epidemic catarrh (fr. *influo*, to abound), ii. 98.
- Intus-susceptio, *ōnis*, *f.* (*intus*, within, and *susceptio*, a taking), ii. 157.

- Iritis, *ἰδῖς, f.* (*iris*, a rainbow, *itis*), ii. 236.
- Ischuria, *ω, f.* Suppression of urine (*ἰσχυρία*, fr. *ἰσχω*, to restrain, *οὐρὸν*, urine), ii. 200.
- Itis. (*ἔημι*, to urge against, thus denoting violent action, and used as a terminal to indicate *inflammation*), i. 57.
- Kyestein (*κύσις, εὼς, ἦ*, pregnancy, *έσθής, ἦτος, ἦ*, a covering), i. 126.
- Laryngismus, *ι, m.* (*λάρυγγιζω*, to vociferate), ii. 96.
- Laryngitis, *ἰδῖς, f.* (*λάρυγξ*, the larynx, *itis*), ii. 89.
- Lepa. A cutaneous disease (*λεπρος*, scaly), ii. 281.
- Leucocythemia, *ω, f.* (*λευκός*, white, *κύτος*, a cell, and *αἷμα*, blood), i. 244.
- Leucorrhœa, *ω, f.* The whites (*λευκός*, white, *ρέω*, to flow), ii. 210.
- Lichen, *ένῖς, n.* A cutaneous disease (*λειχήν*, a lichen), ii. 279.
- Lumbago, *ίνῖς, f.* (*lumbus*, the loins), i. 335.
- Lumbricus, *ι, m.* (*Ascaris lumbricoides*) round worm (*lumbricus*, slippery), ii. 294.
- Lupus, *ι, m.* (*lupus*, a wolf), ii. 290.
- Mania, *ω, f.* (*μαίνομαι*, to be furious), i. 108, ii. 48.
- Marasmus, *ι, m.* Atrophy (*μαραίνω*, to wither), i. 279.
- Melæna, *ω, f.* Hæmorrhage from the bowels (*μέλαινα*, black), ii. 156.
- Melancholia, *ω, f.* (*μέλαινα*, black, *χολή*, bile), i. 108, ii. 60.
- Melanosis, *ῖς, f.* A morbid product of a black color (*μέλας*, *μέλανος*, black), i. 79.
- Melasma, *ἄῖς, n.* (Fr. *μέλας*, black), i. 245.
- Meningitis, *ἰδῖς, f.* (*μῆνιγξ*, a membrane, *itis*), ii. 4.
- Menorrhagia, *ω, f.* Flooding (*μῆν*, a month, *ρήγνυμι*, to burst forth), ii. 209.
- Mentagra, *ω, f.* (*mentum*, the chin, *ἄγρα*, seizure), ii. 263.
- Metritis, *ἰδῖς, f.* Inflammation of the womb (*μήτρα*, the womb, *itis*), i. 317, ii. 212.
- Miliaria, *ω, f.* Miliary fever (*milium*, a millet seed), ii. 273.
- Mimosis, *ῖς, f.* (*μιμος*, a mimic), i. 246.
- Mollities, *εῖ, f.* Softening (*mollis*, soft), i. 327.
- Molluscum, *ι, n.* (*molluscum*, the bunch of the tree acer), ii. 284.
- Myelitis, *ἰδῖς, f.* Inflammation of the spinal cord (*μυελός*, marrow, *itis*), ii. 19.
- Myopia, *ω, f.* Near sight (*μύω*, to wink, *ὤψ*, *ὠπός*, *ἦ*, the eye), ii. 249.
- Narcotic, *narcōticus, α, um.* (*ναρκόω*, to stupefy), i. 228.
- Nephritis, *ἰδῖς, f.* (*νεφρός*, the kidney, *itis*), ii. 185.
- Neuralgia, *ω, f.* (*νεῦρον*, a nerve, *ἄλγος*, pain), ii. 23.

- Noma, *ω, f.* A corroding sore (*νομη, ἥς, ἡ*, spreading of fire), ii. 132.
- Noseræsthesia. Morbid sensation (*νοσηρός*, unhealthy, *αἰσθησις*, sensation), i. 92.
- Nystagmus. Involuntary movements of the eyeball (*νυσταξω*, to nod), ii. 37.
- Œdéma, *âtis n.* (*οἰδέω*, to swell), i. 59-i. 253.
- Œsophagitis, *îdis, f.* (*οἶσω*, to carry, *φάγω*, to eat, *itis*), ii. 139.
- Oophoritis, *Oôphorum, i, n.*, an ovary (*ὠόν*, an egg, *φέρω*, to bear, *itis*), ii. 219.
- Ophthalmia, *ω, f.* Inflammation of the eye (*ὀφθαλμός*, the eye), ii. 230.
- Opisthotonos, *adj.* (*ὀπισθε*, at the back, *τείνω*, to bend), bent backwards, ii. 46.
- Osteo-malacia, *ω, f.* (*ὀστέον*, a bone, *μαλακία*, softness), i. 327.
- Otitis, *îdis, f.* (*οὖς, ὠτός*, the ear, *itis*), ii. 249.
- Palpitatio, *ônis, f.* (*palpito*, to throb), ii. 64.
- Paracentesis, *is, f.* Tapping (*παρά*, through, *κεντέω*, to pierce), ii. 125.
- Paralysis, *is, f.* Palsy (*παράλυω*, to relax), ii. 28-ii. 33.
- Paraplegia, *ω, f.* Palsy of the lower half of the body (*παραπλήσσω*, to strike), ii. 30.
- Parotitis, *îdis, f.* (*παρά*, near, *ὠτός*, of the ear), ii. 137.
- Pellegra, *ω, f.* (*pellis agria*, wild skin; or *φελλός*, the bark of the cork-tree, and *ἄγριος*, wild), ii. 282.
- Pemphigus, *i, m.* (*πέμφιγος*, of a small blister), ii. 274.
- Pericarditis, *îdis, f.* (*περί*, around, *καρδία*, the heart, *itis*), ii. 69.
- Peritonitis, *îdis, f.* (*περιτόναιον*, fr. *περί*, around, *τείνω*, to extend, *itis*), ii. 166.
- Pertussis, *is, f.* Whooping-cough (*pertussis*, a severe cough), ii. 108.
- Pestis, *is, f.* The plague (Lat. *pestis*), i. 308.
- Pětěchiæ, *a, ω, f.* (*pětěchio*, a fleabite), small purple spots, i. 183.
- Phlebitis, *îdis, f.* Inflammation of the veins (*φλέψ*, *φλεβός*, a vein), ii. 87.
- Phlegmasia, *ω, f.* (*φλέγμα*, a burning, fr. *φλέγω*, to burn), ii. 88.
- Phlegmon, *Phlegmônē, es, f.* (fr. *φλέγω*, to burn), i. 59.
- Phlogosis, *is, f.* (*φλόγωσις*, a burning, *φλογόω*, to inflame), i. 249.
- Phrenitis, *îdis, f.* (*φρήν*, *φρενός*, the mind, *itis*), ii. 4.
- Phthisis, *is, f.* Consumption (*φθίσις*, fr. *φθίω*, to consume), ii. 114.
- Pityriasis, *is, f.* Dandriff (*πίτυρον*, bran), ii. 282.
- Plethora, *fulness of blood* (*πληθώρα*, fullness), i. 239.
- Pleuritis, *îdis, f.* Inflammation of the pleura (*πλευρά*, the side), ii. 123.
- Plenrodynia. (*πλευρά*, the side, *ὀδύνη*, pain), i. 334.

- Pleurosthotonos, *adj.* (πλευρόθεν, from one side, τείνω, to bend), bent sideways, ii. 46.
- Pneumonia, *æ, f.* Inflammation of the lungs (πνεύμων, the lung), ii. 110.
- Pneumothorax, *ācis, f.* Air in the pleura (πνεῦμα, air, θώραξ, the chest), ii. 126.
- Podagra, *æ, f.* Gout (ποδός, of a foot, ἄγρᾱ, seizure), i. 335.
- Polyæmia, *æ, f.* (πολύς, much, αἷμα, blood), i. 239.
- Polypus, *i, m.* (πολύς, many, πούς, a foot), ii. 215.
- Porrigō, *īnis, m. and f.* (porrum, a leak), ii. 264.
- Prurigo, *īnis, f.* Pruritus. (prurigo, itching, prurio, to itch), ii. 280.
- Psora, *æ, f.* The itch (ψώρα), ii. 255.
- Psoriasis, *is, f.* Dry scall (ψώρα, the itch), ii. 281.
- Ptoſis, *is, f.* (fr. πτόω, to fall), ii. 35.
- Puerperal. (puer, a boy, pario, to bring forth), i. 315.
- Purpura, *æ, f.* Scurvy (purpura, a shell-fish yielding a purple dye), i. 327.
- Pyæmia, *æ, f.* (πύον, pus, αἷμα, blood), i. 313, ii. 85.
- Pyogenic. (pyogenicus, *a, um*, fr. πύον, pus, γεννάω, to form), i. 313.
- Pyrexia, *æ, f.* Fever (πύρεξις, fr. πῦρ; ἔχω, to hold), ii. 259.
- Pyrosis, *is, f.* Water-brash (πύρωσις, burning), ii. 148.
- Quinsy. (cynanche, fr. κύων, a dog, αγκω, to strangle), ii. 135.
- Rachitis, *īdis, f.* Rickets (ράχις, the back), i. 325.
- Retinitis, *īdis, f.* Inflammation of the retina (rete, a net, and itis), ii. 241.
- Rheumatism, *Rheumatismus, i, m.* (fr. ῥεῦμα, a fluxion), i. 330.
- Rubeola, *æ, f.* Measles (rubeo, to be red), i. 297.
- Rupia, *æ, f.* A cutaneous disease (ρύπος, filth), ii. 275.
- Scabies, *ei, f.* The itch (scabies, fr. scabo, to scratch), ii. 255.
- Scarlatina, *adj., us, a, um*, scarlet. Febris understood, i. 300.
- Sciatica, *æ, f.* Pain in the hip (ἰσχιάς, fr. ἴσχιον, the hip), ii. 26.
- Scirrhus, *i, m.* Hard cancer (σκήρρος, ου, ό, fr. σκίρω, bit of marble), i. 73.
- Sclerotitis, *īdis, f.* (σκληρός, hard, and itis), ii. 234.
- Scorbutus, *i, m.* Scurvy (Lat. scorbutus), i. 329.
- Scrofula, *æ, f.* King's evil (scrofula, a little pig), i. 2, i. 323.
- Scybala, *plur.*, hard fæces. (σκύβαλον, ου, τδ, dung), ii. 156-157.
- Septicæmia, *æ, f.* (fr. σήπω, to putrefy, αἷμα, the blood), i. 313.
- Spermatorrhœa, *æ, f.* (σπέρμα, seed, ῥέω, to flow), ii. 228.
- Splenitis, *īdis, f.* Inflammation of the spleen (σπλήν, the spleen, itis), ii. 183.
- Staphyloma, *atis, n.* A protrusion (σταφυλή, ἤς, ῆ, a grape), ii. 244.

Stomatitis, *idis, f.* Inflammation of the mouth (*στόμα*, the mouth, *itis*), ii. 128.

Strabismus, squinting. (*στρέφω*, to turn aside), ii. 33.

Stridulus, *a, um.* Creaking, ii. 96.

Struma, *pl., us, i. m.* King's evil (*στρώμα*, a heaping up), i. 2, i. 323.

Sycosis, *is, f.* Chin-welk (*συκόω*, to convert into a fig), ii. 263, ii. 278.

Syncope, *es, f.* Fainting (*συγκόπτω*, to cut down), i. 225, ii. 67.

Syphilis, *idis, f.* (fr. *συν*, together, *φιλέω*, to love), ii. 134.

Tabes (*is, f.*) mesenterica. (*tabes*, a consumption, *μεσεντέριον*, the mesentery), ii. 167.

Tænia, *æ, f.* Tape-worm (*tænia*, a riband, from *τείνω*, to stretch), ii. 298.

Tenesmus, or os, *i, m.* Straining (*τείνω*, to strain, *τεινέσµος*), ii. 160.

Tetanus, *i, m.* Locked jaw (*τείνω*, to stretch), ii. 45.

Thrombosis, *is, f.* (fr. *θρόμβος*, a clot of blood), i. 74, ii. 81.

Tic-douloureux. (Fr. *tic*, a convulsive motion, *douloureux*, painful), ii. 24.

Tonic, *tonicus, a, um.* (fr. *τείνω*, to tighten), i. 226.

Tonsillitis, *idis, f.* (*tondeo*, to clip? and *itis*), ii. 135.

Tormina, *en, ñis, n.* (fr. *torqueo*, to rack), griping pains, ii. 159.

Tracheitis, *idis, f.* (*τραχεΐα ἀρτηρία*, rough artery, *itis*), ii. 95.

Trismus, *i, m.* Locked jaw (*τρισμός*, fr. *τρίβω*, to gnash the teeth), ii. 45.

Tympanites, *æ, m.* Drum-belly (*τυμπανοειδής*, like a drum), ii. 160.

Typhoid. (*typhus*, and *είδος*, like), i. 277.

Typhous. (*typhosus*, pertaining to typhus), i. 270.

Typhus, *i, m.* (*τυφός*, fr. *τυφώω*, to stupefy), i. 269.

Urticaria, *æ, f.* Nettle-rash (*urtica*, a nettle), ii. 269.

Vaccina, *æ, f.* Cow-pox (*vaccinus*, belonging to a cow), i. 295.

Varicella, *æ, f.* Chicken-pox (dim. of *varus*, a spot), i. 297.

Variola, *æ, f.* Small-pox (dim. of *varus*, a spot), i. 288.

Varioloid. (*variola*, small-pox, *είδος*, like), i. 291.

Vibices, *vibex, icis, f.* Purple blotches of the skin, i. 277.

Zymotic. Contagious and infectious diseases (*ζυµωσις*, fermentation, fr. *ζυµώω*, to ferment). An inappropriate term, i. 19.

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